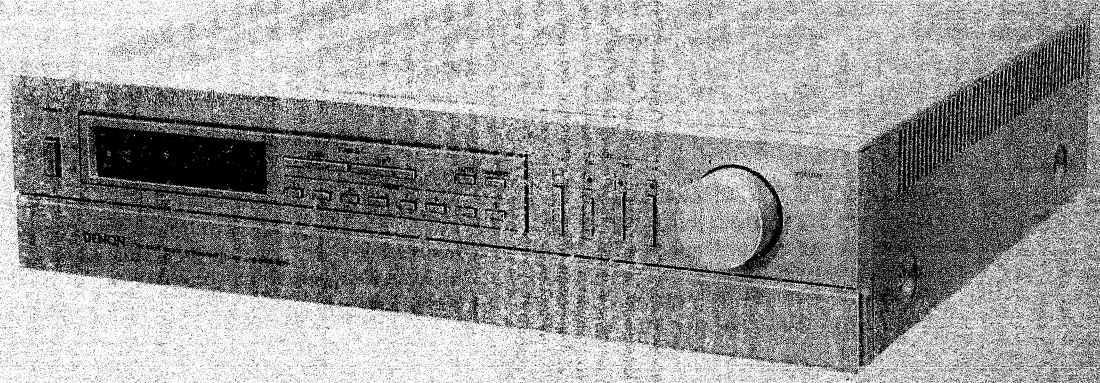
DENON

Hi-Fi Component Tuner Amplifier

SERVICE MANUAL

MODEL DRA-600



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NIPPON COLUMBIA CO., LTD.

Dec. 1982

SPECIFICATIONS

AMPLIFIER SECTION

Continuous Power Output:	RMS both channels driven into 8 ohms from 20 Hz to 20 kHz 60 W + 60 W
Power Bandwidth (IHF):	10 Hz ~ 35 kHz
Music Power:	95 W + 95 W / 8 ohms
Total Harmonic Distortion:	0.03% (at –3 dB Power, 1 kHz)
Intermodulation Distortion:	0.03% (60 Hz : 7 kHz, 4 : 1)
Damping Factor:	More than 50 (at 1 kHz, 8 ohms)

PREAMPLIFIER SECTION

Frequency Response:	PHONO RIAA Standard Curve		
	(Recording Output)		±0.3 dB
	TAPE, AUX		±0.5 dB
Input Sensitivity and Impedance:	PHONO MM	2.5 mV	47 k ohm
	MC	0.3 mV	100 ohm
	TAPE, AUX	150 mV	
		More than 40 k ohm	
Maximum Input Level (at 1 kHz):	PHONO MM	150 mV	
	MC	25 mV	
	TAPE, AUX	4 V	
Signal to Noise Ratio (IHF-A):	PHONO MM	@ 5.0 mV input	86 dB
	PHONO MC	@ 0.25 mV input	72 dB
	TAPE, AUX	@ 150 mV input	95 dB
Tone Control Range:	BASS	at 100 Hz	±10 dB
	TREBLE	at 10 kHz	±10 dB
Loudness Control Effect:	at –30 dB attenuation	100 Hz / 10 kHz	
	+8 dB / +4 dB		
Subsonic Filter Effect:	15 Hz / 6 dB octave		

TUNER SECTION

[FM]			
Receiving Range:	88.1 ~ 107.9 MHz 87.50 ~ 108.00 MHz (For European model)		
Mono IHF Sensitivity:	1.8 μV		
Signal to Noise Ratio:	MONO	74 dB	
	STEREO	71 dB	
Total Harmonic Distortion 1 kHz:	MONO	0.1%	at 1 kHz 100% mod.
	STEREO	0.2%	
Capture Ratio:	1.2 dB		
Image Rejection:	75 dB		
AM Suppression:	50 dB		
Frequency Response:	$^{+0.2}_{-1.5}$ dB		
Stereo Separation:	45 dB		
[AM]			
Receiving Range:	530 ~ 1610 kHz 522 ~ 1611 kHz (For European model)		
Usable Sensitivity:	300 μV/m		
Signal to Noise Ratio:	55 dB		

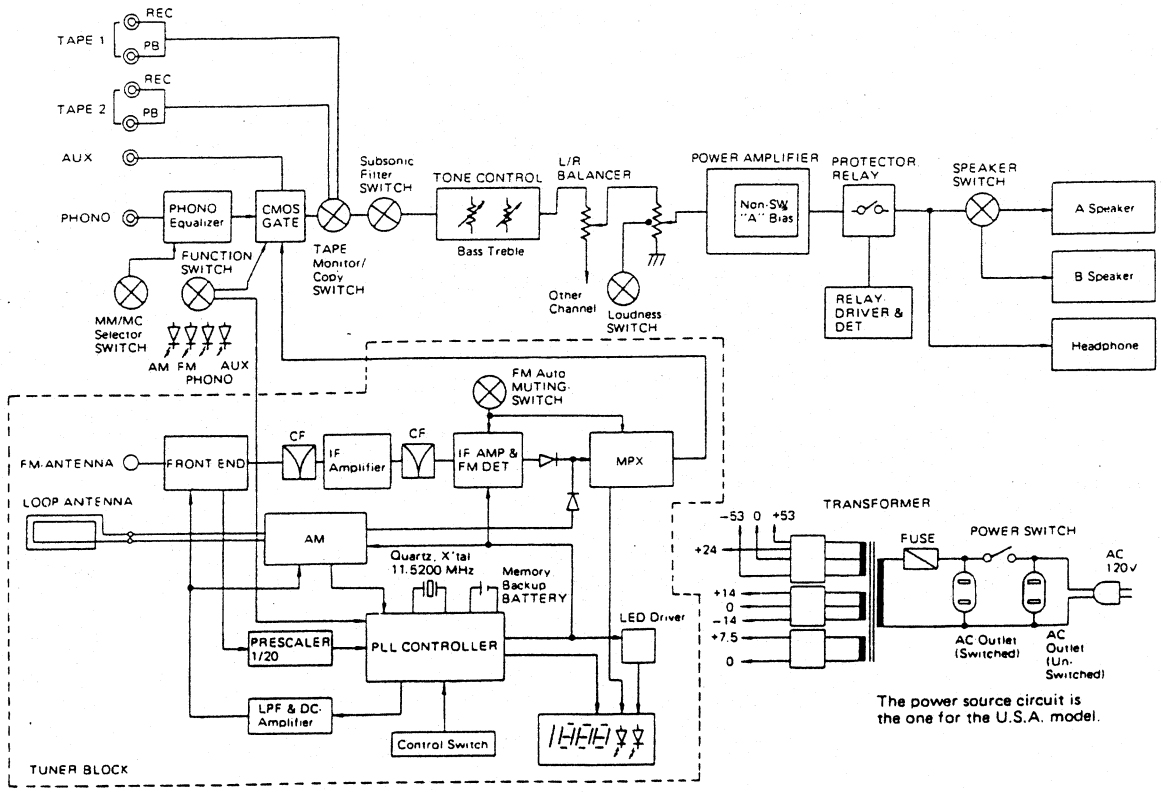
GENERAL

Power Requirements:	Europe: AC 220 V, 50 Hz, U.K.: AC 240 V, 50 Hz, U.S.A.: AC 120 V, 60 Hz, Hong Kong: AC 200 V, 50 Hz
Consumption:	200 W (U.S.A.) 250 VA (Canada) 160 W (at maximum output) (IEC)
Power Outlets: (Not included in systems for European use)	SWITCHED x 1, 100 W UNSWITCHED x 1, 250 W
Dimensions:	434mm (W) x 112mm (H) x 408mm (D)
Weight:	11 kg

Design and specifications subject to change without notice.

NOTE: The following codes correspond to the appropriate models.
E3 for U.S.A., EC for Canada, E2 for Europe, EF for France, EG for Germany, E1 for Hongkong.
This service manual is prepard based on E3.

BLOCK DIAGRAM



The power source circuit is the one for the U.S.A. model.

NOTES ON SERVICING REMOTE SWITCH

(1) Hold the case when remove and install the speaker switch.

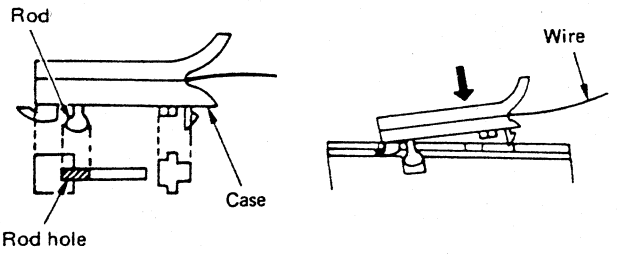


Fig. 1 How to install

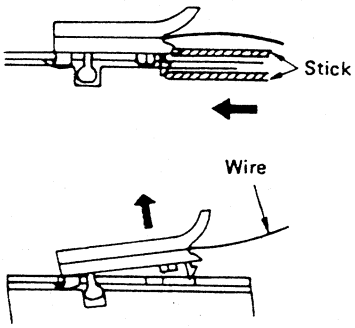


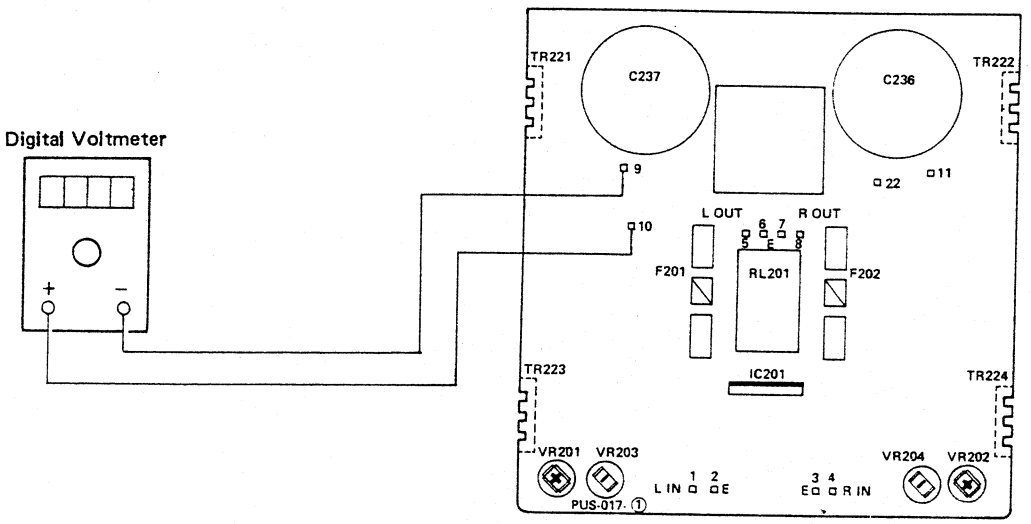
Fig. 2 How to remove

METHOD OF ADJUSTMENT

AMP SECTIONS

Carry out adjustments at room temperature and normal humidity and with the power source operating at the rated voltage.

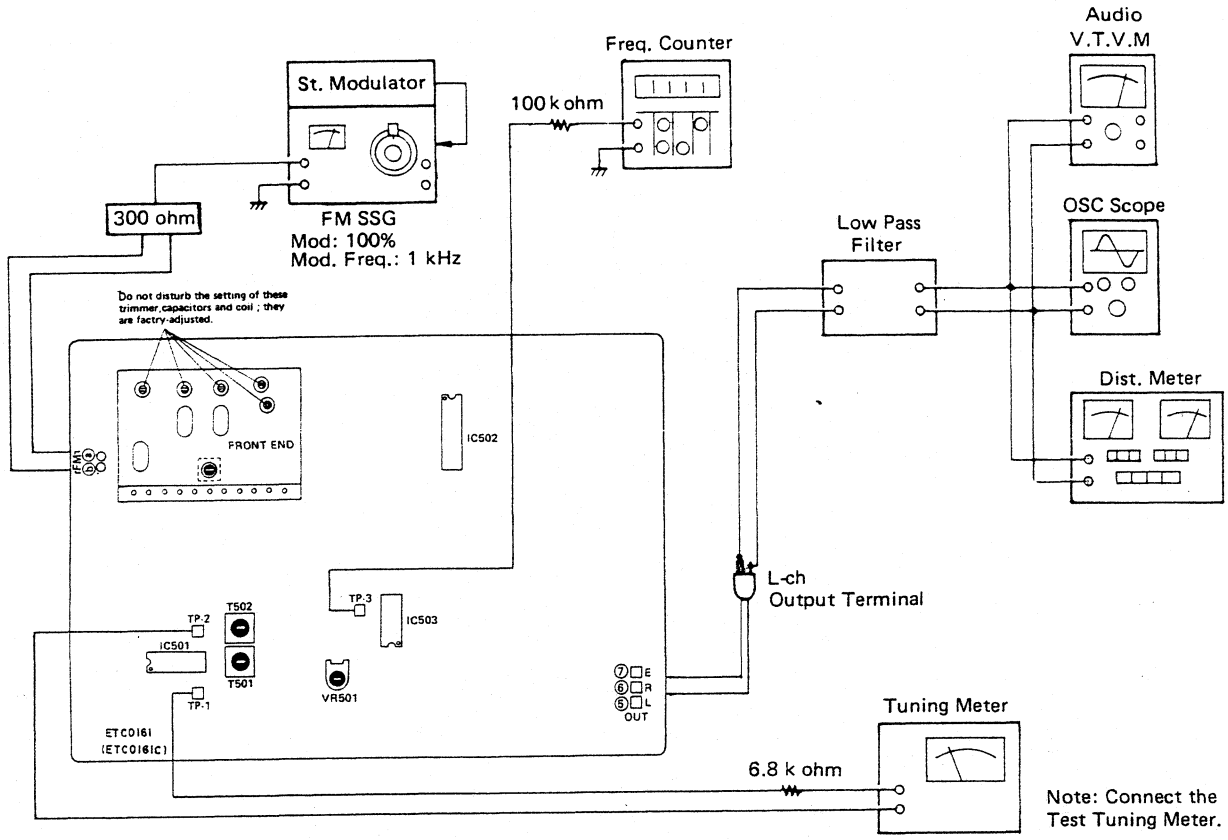
IDLE CURRENT ADJUSTMENT METHOD OF POWER AMP (PUS0017/PUS0019 PRINTED BOARD)



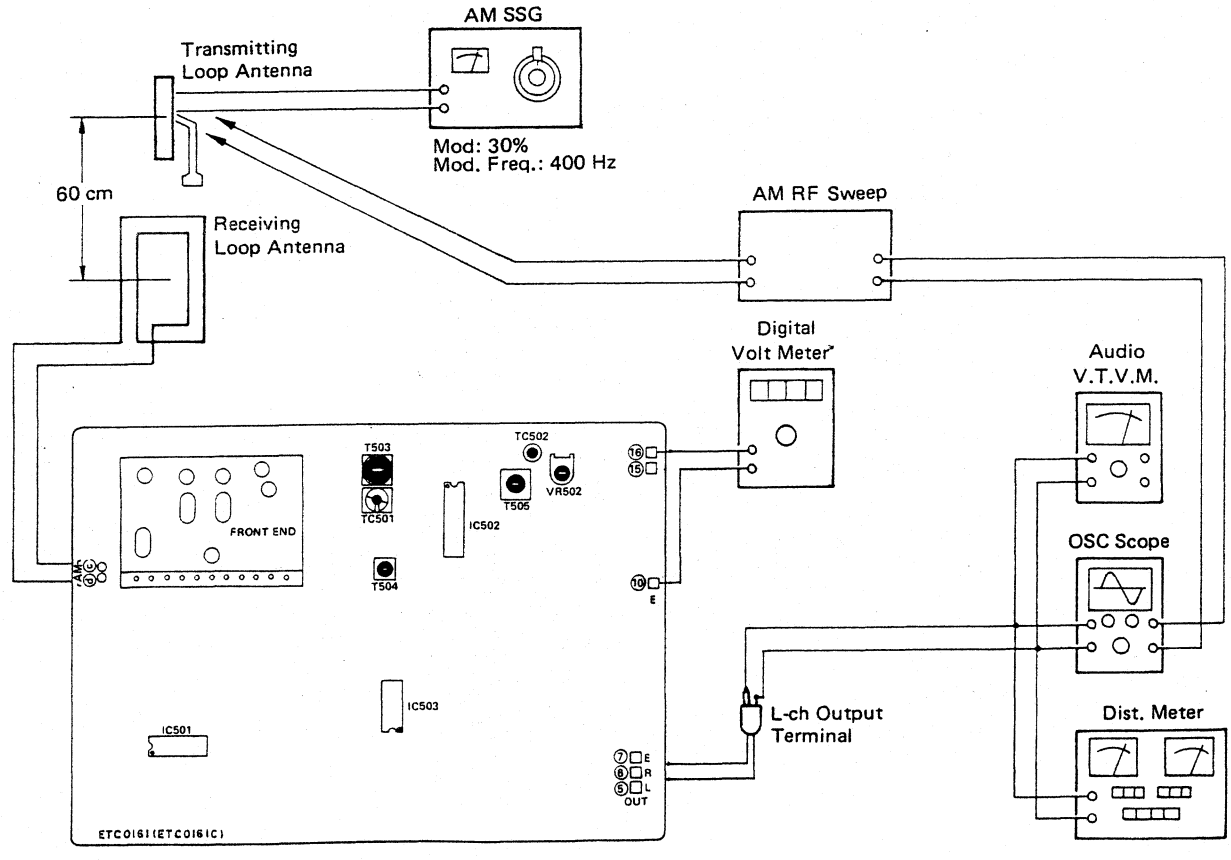
1. Connect a digital voltmeter to the L-ch test points (9) and (10)
2. Set the MAIN VOL to MIN position.
3. Position the PUS0017 ondor PUS0019 semi-fixed resistors VR201 and VR202 to extremely counterclockwise, VR203 and VR204 to extremely counterclockwise.
4. Turn the POWER SW on and wait about 3 minutes for warming-up, then conduct the following adjustments.
5. Rotate VR201 clockwise and obtain 10 mV on the digital voltmeter.
6. Rotate VR203 clockwise and obtain 23 mV on the digital voltmeter.
7. Connect the digital voltmeter to the R-ch test points (11) and (22).
8. Ratate VR202 clockwise and obtain 10 mV on the digital voltmeter.
9. Rotate VR204 counterclockwise and obtain 23 mV on the digital voltmeter.

TUNER SECTIONS

FM/MPX ALIGNMENT POINTS & CONNECTIONS



AM ALIGNMENT POINTS & CONNECTIONS



METHOD OF ADJUSTMENTS

Carry out adjustment at room temperature and normal humidity with the power source operating at the rated voltage.

FM/MPX ALIGNMENT

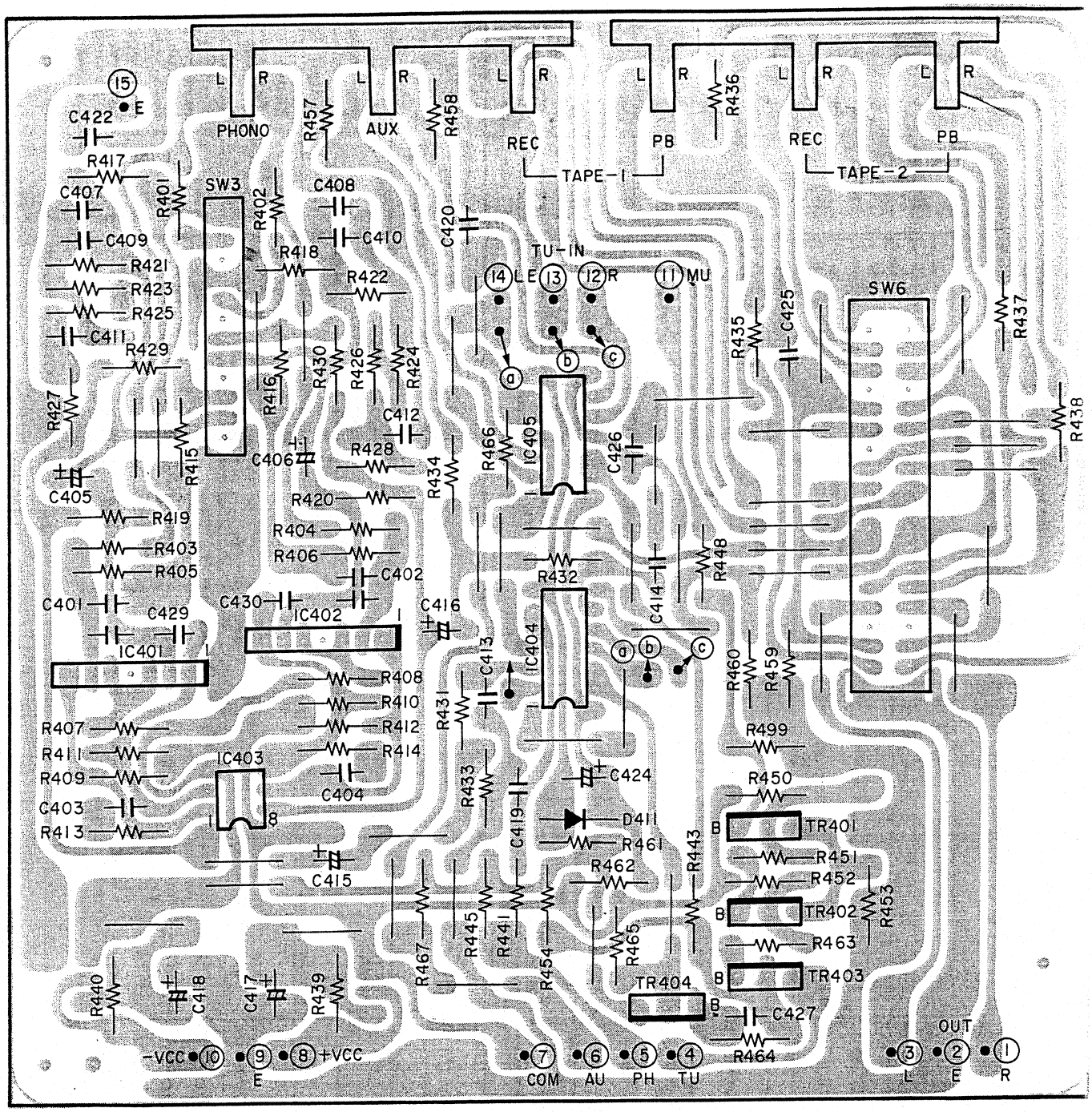
STEP	ITEM	RECEIVING FREQUENCY	INPUT SIDE					OUTPUT SIDE		ADJUST	ADJUST LIMIT	REMARKS
			INSTRUMENT	FREQ.	INPUT LEVEL	MODULATION	COUPLING	INSTRUMENT	CONNECTION			
1	Tuning meter to center position	98.1 MHz	FM S.S.G.	98.10MHz ±5kHz	60 dBμV	1kHz 100%	ANT.terminal (300 ohm dummy)	Tuning meter	Between TP-1 & IP-2	T501	Tuning meter to center position	Function FM(MODE MONO)
2	Minimum distortion	98.1 MHz	FM S.S.G.	98.10MHz ±5kHz	60 dBμV	1kHz 100%	ANT.terminal (300 ohm dummy)	Distortion meter	Rec output terminal (L-channel)	T502	Minimum distortion	Function FM(MODE MONO)
3	Tuning meter center position minimum distortion	Repeat Step 1 and 2 so that the pointer of the tuning meter comes to the center when minimum distortion is obtained.										
4	Front end IFT	98.1 MHz	FM S.S.G.	98.10MHz ±5kHz	60 dBμV	1kHz 100%	ANT.terminal (300 ohm dummy)	Distortion meter	Rec output terminal (L-channel)	Front end IFT core	Minimum distortion	Function FM(MODE MONO)
5	19 kHz	98.1 MHz	FM S.S.G.	98.10MHz ±5kHz	60 dBμV	—	ANT.terminal (300 ohm dummy)	Frequency counter	Through 100 k ohm to TP-3	VR501	19 kHz ±30 Hz	MODE (STEREO/ MUTING)
6	Front end IFT	98.1 MHz	Stereo modulator FM S.S.G.	98.10MHz ±5kHz	60 dBμV	1kHz 90% Pilot 10%	ANT.terminal (300 ohm dummy)	Distortion meter	Rec output terminal (L-channel)	Front end IFT core	Minimum distortion	MODE (STEREO/ MUTING)

AM ALIGNMENT

1	AM IFT	—	AM IF Sweep generator	—	Regulate to a half of the level at which the waveform distorts	—	Loop ANT.	Oscilloscope	R583 = 27 k ohm	T504	Maximum height and best symmetry curve	Function AM
2	T301	530 kHz	—	—	—	—	—	Digital voltmeter	Terminal 16	T505	3.9±0.1 Volts	Function AM
3	OSC trimmer	1610 kHz	—	—	—	—	—	Digital voltmeter	Terminal 16	TC502	20.0±0.6 Volts	Function AM
4	Repeat Step 2 and 3 so that the tuning voltage at 600 kHz & 1400 kHz are within the adjust limit.											
5	ANT. coil	600 kHz	AM S.S.G.	600kHz ±0.2kHz	Below AGC level	400Hz 30%	Loop ANT.	VTVM	Rec output terminal (L-channel)	T503	Maximum audio output	Function AM
6	ANT trimmer	1400 kHz	AM S.S.G.	1400kHz ±0.2kHz	Below AGC level	400Hz 30%	Loop ANT.	VTVM	Rec output terminal (L-channel)	TC501	Maximum audio output	Function AM
7	Repeat Step 5 and 6 so that 600 kHz and 1400 kHz are received at maximum gain, respectively.											

PRINTED WIRING BOARD PATTERNS AND PARTS LIST

AUE0011 EQ. & CONTROL UNIT



AUE0011 EQ & CONTROL UNIT PARTS LIST

Ref. No.	Part No.	Part Name & Descriptions
		SEMICONDUCTORS
IC401	2750024017	μPA68H(L) IC
IC402	2750024017	μPA68H(L) IC
IC403	2650030004	NJM4558D-D IC
IC404	2620276005	HD14066BP IC
IC405	2620276005	HD14066BP IC
TR401	2730198002	2SC1815(Y) TRANSISTOR
TR402	2730198002	2SC1815(Y) TRANSISTOR
TR403	2710102005	2SA1015(Y) TRANSISTOR
TR404	2730198002	2SC1815(Y) TRANSISTOR
D411	2760256008	HZ-16-2 ZENER
		RESISTORS
R401	2412068007	100 ohm ±5% ¼W CARBON FILM
R402	2412068007	100 ohm ±5% ¼W CARBON FILM
R403	2412044005	10 ohm ±5% ¼W CARBON FILM
R404	2412044005	10 ohm ±5% ¼W CARBON FILM
R405	2412133000	51 kohm ±5% ¼W CARBON FILM
R406	2412133000	51 kohm ±5% ¼W CARBON FILM
R407	2412101003	2.4 kohm ±5% ¼W CARBON FILM
R408	2412101003	2.4 kohm ±5% ¼W CARBON FILM
R409	2412097007	1.6 kohm ±5% ¼W CARBON FILM
R410	2412097007	1.6 kohm ±5% ¼W CARBON FILM
R411	2412097007	1.6 kohm ±5% ¼W CARBON FILM
R412	2412097007	1.6 kohm ±5% ¼W CARBON FILM
R413	2412112005	6.8 kohm ±5% ¼W CARBON FILM
R414	2412112005	6.8 kohm ±5% ¼W CARBON FILM
R415	2412048001	15 ohm ±5% ¼W CARBON FILM
R416	2412048001	15 ohm ±5% ¼W CARBON FILM
R417	2412068007	100 ohm ±5% ¼W CARBON FILM
R418	2412068007	100 ohm ±5% ¼W CARBON FILM
R419	2420203003	10 Mohm ±10% ¼W CARBON COMPOSIT
R420	2420203003	10 Mohm ±10% ¼W CARBON COMPOSIT
R421	2412108006	4.7 kohm ±5% ¼W CARBON FILM
R422	2412108006	4.7 kohm ±5% ¼W CARBON FILM
R423	2412134009	56 kohm ±5% ¼W CARBON FILM
R424	2412134009	56 kohm ±5% ¼W CARBON FILM
R425	2412080001	330 ohm ±5% ¼W CARBON FILM
R426	2412080001	330 ohm ±5% ¼W CARBON FILM
R427	2412051001	20 ohm ±5% ¼W CARBON FILM
R428	2412051001	20 ohm ±5% ¼W CARBON FILM
R429	2412153006	360 kohm ±5% ¼W CARBON FILM
R430	2412153006	360 kohm ±5% ¼W CARBON FILM
R431	2412076002	220 ohm ±5% ¼W CARBON FILM
R432	2412076002	220 ohm ±5% ¼W CARBON FILM
R433	2412140006	100 kohm ±5% ¼W CARBON FILM
R434	2412140006	100 kohm ±5% ¼W CARBON FILM
R435	2412092002	1 kohm ±5% ¼W CARBON FILM
R436	2412092002	1 kohm ±5% ¼W CARBON FILM
R437	2412092002	1 kohm ±5% ¼W CARBON FILM
R438	2412092002	1 kohm ±5% ¼W CARBON FILM
R441	2412152007	330 kohm ±5% ¼W CARBON FILM
R443	2412152007	330 kohm ±5% ¼W CARBON FILM
R445	2412128002	33 kohm ±5% ¼W CARBON FILM

Ref. No.	Part No.	Part Name & Descriptions
R448	2412124006	22 kohm ±5% ¼W CARBON FILM
R449	2412118009	12 kohm ±5% ¼W CARBON FILM
R450	2412118009	12 kohm ±5% ¼W CARBON FILM
R451	2412132001	47 kohm ±5% ¼W CARBON FILM
R452	2412112005	6.8 kohm ±5% ¼W CARBON FILM
R453	2412079009	300 ohm ±5% ¼W CARBON FILM
R454	2412128002	33 kohm ±5% ¼W CARBON FILM
R457	2412140006	100 kohm ±5% ¼W CARBON FILM
R458	2412140006	100 kohm ±5% ¼W CARBON FILM
R459	2412132001	47 kohm ±5% ¼W CARBON FILM
R460	2412132001	47 kohm ±5% ¼W CARBON FILM
R461	2412076002	220 ohm ±5% ¼W CARBON FILM
R462	2412076002	220 ohm ±5% ¼W CARBON FILM
R463	2412138005	82 kohm ±5% ¼W CARBON FILM
R464	2412140006	100 kohm ±5% ¼W CARBON FILM
R465	2412124006	22 kohm ±5% ¼W CARBON FILM
R466	2412152007	330 kohm ±5% ¼W CARBON FILM
R467	2412128002	33 kohm ±5% ¼W CARBON FILM
		CAPACITORS
C401	2533629008	120pF ±5% 50V CERAMIC
C402	2533629008	120pF ±5% 50V CERAMIC
C403	2533615009	33pF ±5% 50V CERAMIC
C404	2533615009	33pF ±5% 50V CERAMIC
C405	2549022013	4.7μF(LR) 25V ELECTROLYTIC
C406	2549022013	4.7μF(LR) 25V ELECTROLYTIC
C407	2551121038	0.012μF ±5% 50V PLASTIC FILM
C408	2551121038	0.012μF ±5% 50V PLASTIC FILM
C409	2551120084	0.0047μF ±5% 50V PLASTIC FILM
C410	2551120084	0.0047μF ±5% 50V PLASTIC FILM
C411	2551122011	0.056μF ±5% 50V PLASTIC FILM
C412	2551122011	0.056μF ±5% 50V PLASTIC FILM
C413	2531006005	2200pF ±10% 50V CERAMIC
C414	2531006005	2200pF ±10% 50V CERAMIC
C415	2544147003	2.2μF 50V ELECTROLYTIC
C416	2544147003	2.2μF 50V ELECTROLYTIC
C417	2544139008	100μF 25V ELECTROLYTIC
C418	2544139008	100μF 25V ELECTROLYTIC
C424	2544141009	10μF 35V ELECTROLYTIC
C425	2533633007	180pF ±5% 50V CERAMIC
C426	2533633007	180pF ±5% 50V CERAMIC
C427	2531005006	1500pF ±10% 50V CERAMIC
C429	2533627000	100pF ±5% 50V CERAMIC
C430	2533627000	100pF ±5% 50V CERAMIC
		OTHER PARTS
	2220656106	P.W. BOARD
	2050134908	TERMINAL PIN USED 15
	2090047903	0.6 JUMPER WIRE USED 38
	4140139002	SHIELD PLATE
	2040079002	6P CONNECTOR BASE USED 2
	2124254002	SLIDE SW (REMOTE)
	2124255001	PUSH SW (REMOTE)
	2090008104	JUMPER ℓ=15mm USED 2

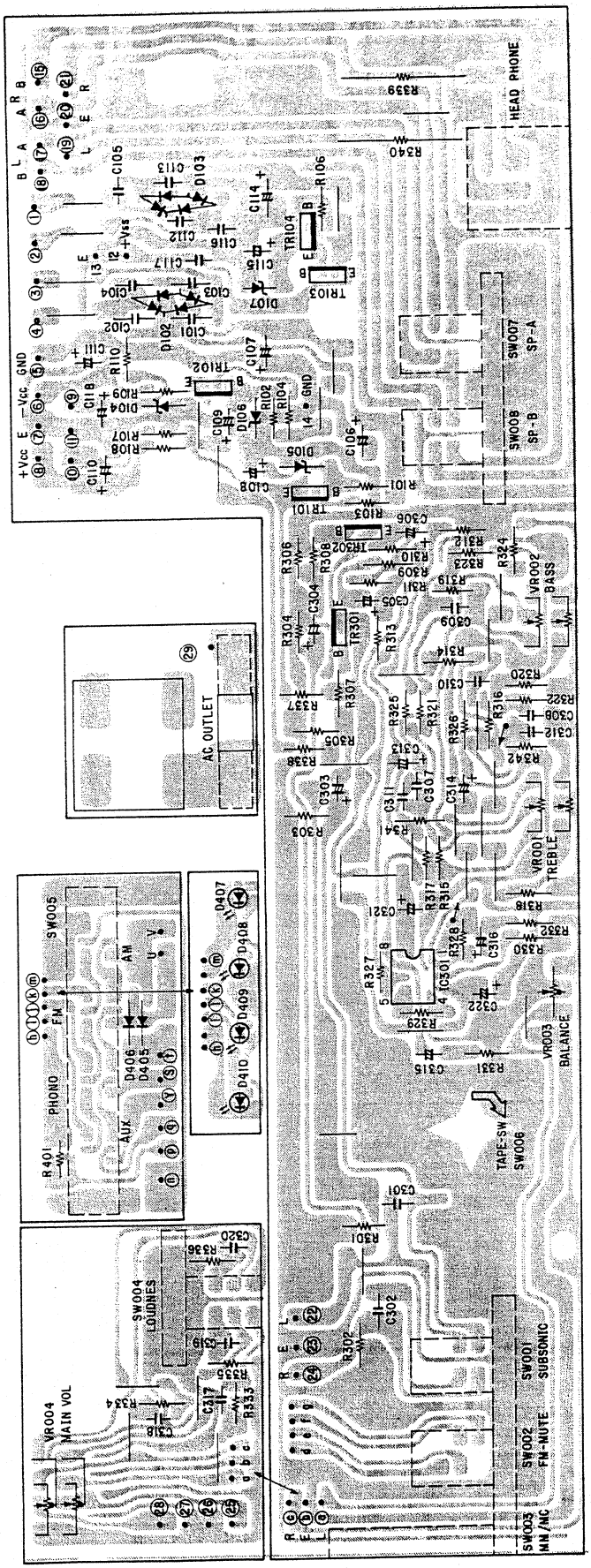
AUE0011B EQ. & CONTROL UNIT PARTS LIST(For EC only)

All parts except not listed are same as AUE0011.

Ref. No.	Part No.	Part Name & Descriptions
		CAPACITORS
C419	2533603008	10pF ±0.5pF 50V CERAMIC
C420	2533603008	10pF ±0.5pF 50V CERAMIC

Ref. No.	Part No.	Part Name & Descriptions

ETC0160 CONTROL UNIT



ETC0160 CONTROL UNIT PARTS LIST

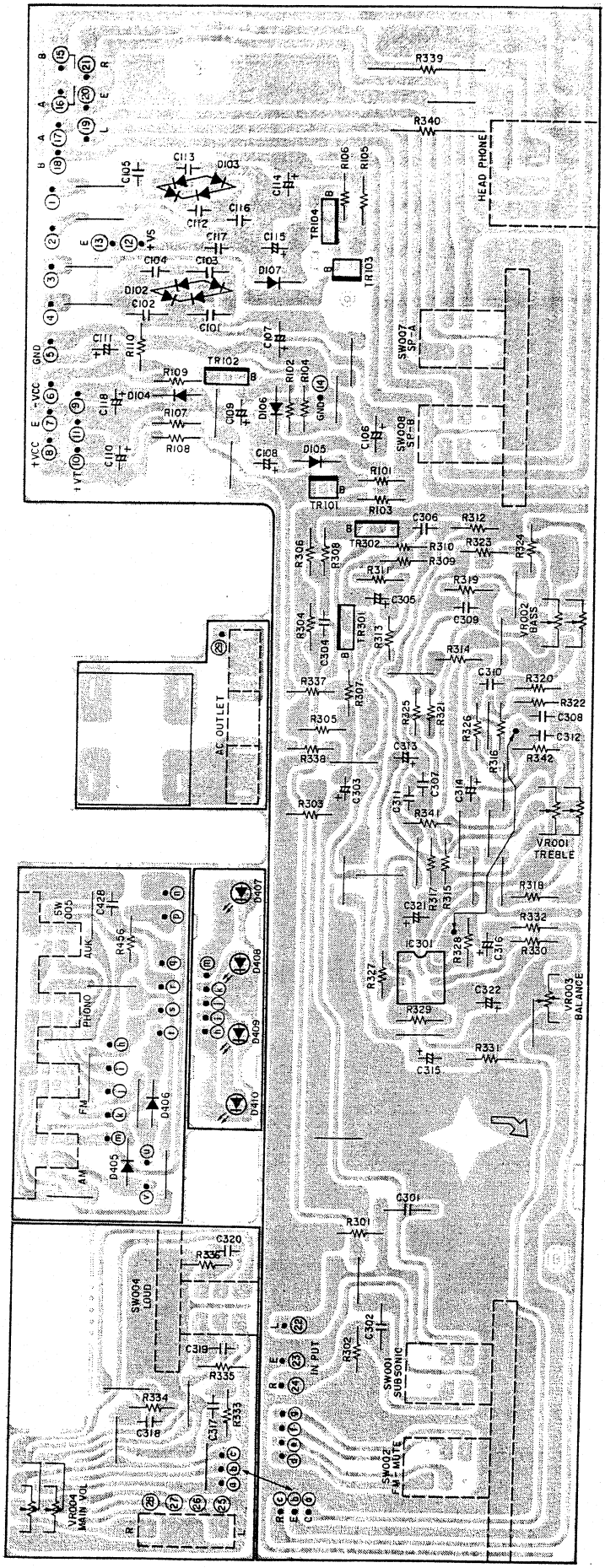
Ref. No.	Part No.	Part Name & Descriptions
		SEMICONDUCTORS
IC301	2650030004	NJM4558D-D IC
TR101	2740065002	2SD880(Y) TRANSISTOR
TR102	2710072009	2SA850(D) TRANSISTOR
TR103	2740065002	2SD880(Y) TRANSISTOR
TR104	2730198002	2SC1815(Y) TRANSISTOR
TR301	2730206004	2SC2320L(F) TRANSISTOR
TR302	2730206004	2SC2320L(F) TRANSISTOR
D102	2760246005	RB152 DIODE
D103	2760246005	RB152 DIODE
D104	2760220018	HZ24-1 ZENER
D105	2760256008	HZ-16-2 ZENER
D106	2760256008	HZ-16-2 ZENER
D107	2760218033	HZ9B2 ZENER
D405	2760049008	1S2076 ZENER
D406	2760049008	1S2076 ZENER
D407	3939040002	TLG206 GREEN LED
D408	3939040002	TLG206 GREEN LED
D409	3939040002	TLG206 GREEN LED
D410	3939040002	TLG206 GREEN LED
		RESISTORS
VR001	2110265005	VARIABLE RESISTOR 250 kohm
VR002	2110265005	VARIABLE RESISTOR 250 kohm
VR003	2110198004	VARIABLE RESISTOR 250 kohm
VR004	2110251006	VARIABLE RESISTOR 100 kohm
R101	2412108006	4.7 kohm ±5% ¼W CARBON FILM
R102	2412117000	11 kohm ±5% ¼W CARBON FILM
R103	2442006013	39 ohm ±5% 1W METAL OXIDE FILM
R104	2442012010	120 ohm ±5% ½W METAL OCIDE FILM
R106	2412088003	680 ohm ±5% ¼W CARBON FILM
R107	2412053009	24 ohm ±5% ¼W CARBON FILM
R108	2442007083	47 ohm ±5% ¼W METAL OXIDE FILM (FUSIBLE)
R109	2442007083	47 ohm ±5% ¼W METAL OXIDE FILM (FUSIBLE)
R110	2412099005	2 kohm ±5% ¼W CARBON FILM
R301	2412164008	1 Mohm ±5% ¼W CARBON FILM
R302	2412164008	1 Mohm ±5% ¼W CARBON FILM
R303	2412158001	560 kohm ±5% ¼W CARBON FILM
R304	2412158001	560 kohm ±5% ¼W CARBON FILM
R305	2412158001	560 kohm ±5% ¼W CARBON FILM
R306	2412158001	560 kohm ±5% ¼W CARBON FILM
R307	2412092002	1 kohm ±5% ¼W CARBON FILM
R308	2412092002	1 kohm ±5% ¼W CARBON FILM
R309	2412120000	15 kohm ±5% ¼W CARBON FILM
R310	2412120000	15 kohm ±5% ¼W CARBON FILM
R311	2412156003	470 kohm ±5% ¼W CARBON FILM
R312	2412156003	470 kohm ±5% ¼W CARBON FILM
R313	2412106008	3.9 kohm ±5% ¼W CARBON FILM
R314	2412106008	3.9 kohm ±5% ¼W CARBON FILM
R315	2412119008	13 kohm ±5% ¼W CARBON FILM
R316	2412119008	13 kohm ±5% ¼W CARBON FILM
R317	2412143003	130 kohm ±5% ¼W CARBON FILM
R318	2412143003	130 kohm ±5% ¼W CARBON FILM
R319	2412143003	130 kohm ±5% ¼W CARBON FILM
R320	2412143003	130 kohm ±5% ¼W CARBON FILM
R321	2412124006	22 kohm ±5% ¼W CARBON FILM
R322	2412124006	22 kohm ±5% ¼W CARBON FILM
R323	2412120000	15 kohm ±5% ¼W CARBON FILM
R324	2412120000	15 kohm ±5% ¼W CARBON FILM
R325	2412128002	33 kohm ±5% ¼W CARBON FILM
R326	2412128002	33 kohm ±5% ¼W CARBON FILM
R327	2412164008	1 Mohm ±5% ¼W CARBON FILM
R328	2412164008	1 Mohm ±5% ¼W CARBON FILM
R329	2412116001	10 kohm ±5% ¼W CARBON FILM
R330	2412116001	10 kohm ±5% ¼W CARBON FILM

(Con.)

Ref. No.	Part No.	Part Name & Descriptions
R331	2412104000	3.3 kohm ±5% ¼W CARBON FILM
R332	2412104000	3.3 kohm ±5% ¼W CARBON FILM
R333	2412168004	1.5 Mohm ±5% ¼W CARBON FILM
R334	2412168004	1.5 Mohm ±5% ¼W CARBON FILM
R335	2412110007	5.6 kohm ±5% ¼W CARBON FILM
R336	2412110007	5.6 kohm ±5% ¼W CARBON FILM
R337	2442007009	220 ohm ±5% ¼W METAL OXIDE FILM (FUSIBLE)
R338	2442007009	220 ohm ±5% ¼W METAL OXIDE FILM (FUSIBLE)
R339	2440092003	330 ohm ±5% 2W METAL OXIDE FILM
R340	2440092003	330 ohm ±5% 2W METAL OXIDE FILM
R341	2412124006	22 kohm ±5% ¼W CARBON FILM
R342	2412124006	22 kohm ±5% ¼W CARBON FILM
R456	2412102002	2.7 kohm ±5% ¼W CARBON FILM
		CAPACITORS
C102	2531053003	10000pF +100,–0% 500V CERAMIC
C104	2431053003	10000pF +100,–0% 500V CERAMIC
C105	2531026001	47000pF +80,–20% 50V CERAMIC
C106	2544041002	470μF 35V ELECTROLYTIC
C107	2544041002	470μF 35V ELECTROLYTIC
C108	2544138009	47μF 25V ELECTROLYTIC
C109	2544138009	47μF 25V ELECTROLYTIC
C110	2544029008	220μF 25V ELECTROLYTIC
C111	2544028009	100μF 25V ELECTROLYTIC
C112	2531026001	47000pF +80,–20% 50V CERAMIC
C113	2531026001	47000pF +80,–20% 50V CERAMIC
C114	2544022005	1000μF 16V ELECTROLYTIC
C115	2544132005	10μF 16V ELECTROLYTIC
C116	2531026001	47000pF +80,–20% 50V CERAMIC
C117	2551072006	0.01μF ±10% 50V PLASTIC FILM
C118	2544038002	100μF 35V ELECTROLYTIC
C301	2551080001	0.047μF ±10% 50V PLASTIC FILM
C302	2551080001	0.047μF ±10% 50V PLASTIC FILM
C303	2544146004	1μF 50V ELECTROLYTIC
C304	2544146004	1μF 50V ELECTROLYTIC
C305	2544034006	4.7μF 35V ELECTROLYTIC
C306	2544034006	4.7μF 35V ELECTROLYTIC
C307	2533643000	470pF ±5% 50V CERAMIC
C308	2533643000	470pF ±5% 50V CERAMIC
C309	2551072006	0.01μF ±10% 50V PLASTIC FILM
C310	2551072006	0.01μF ±10% 50V PLASTIC FILM
C311	2533613001	27pF ±5% 50V CERAMIC
C312	2533613001	27pF ±5% 50V CERAMIC
C313	2544146004	1μF 50V ELECTROLYTIC
C314	2544146004	1μF 50V ELECTROLYTIC
C315	2544140000	4.7μF 35V ELECTROLYTIC
C316	2544140000	4.7μF 35V ELECTROLYTIC
C317	2531003008	680pF ±10% 50V CERAMIC
C318	2531003008	680pF ±10% 50V CERAMIC
C319	2551080001	0.047μF ±10% 50V PLASTIC FILM
C320	2551080001	0.047μF ±10% 50V PLASTIC FILM
C321	2544139008	100μF 25V ELECTROLYTIC
C322	2544139008	100μF 25V ELECTROLYTIC
C428	2531024003	10000pF +80,–20% 50V CERAMIC
		OTHER PARTS
	2220655107	P.W. BOARD
	2090047903	0.6 JUMPER WIRE USED 37
	2050134908	TERMINAL PIN USED 23
	2050092040	4P WRAPPING TERMINAL USED 1
	2048047007	H/P JACK
SW001	2124256000	3P PUSH SW
SW002	2124256000	3P PUSH SW
SW003	2124256000	3P PUSH SW
SW004	2124168004	1P PUSH SW

Ref. No.	Part No.	Part Name & Descriptions
SW005	2124257009	2P PUSH SW
SW006	2124257009	2P PUSH SW
SW007	2124287008	4P PUSH SW
SW008	2124287008	4P PUSH SW
	EP-5870	FUSE HOLDER USED 2
	2033912008	2P AC OUTLET
	4170021009	RADIATOR
	4730354019	TAPPING SCREW (2) 3x8

ETC0171 CONTROL UNIT (For EC only)



ETC0171 CONTROL UNIT PARTS LIST

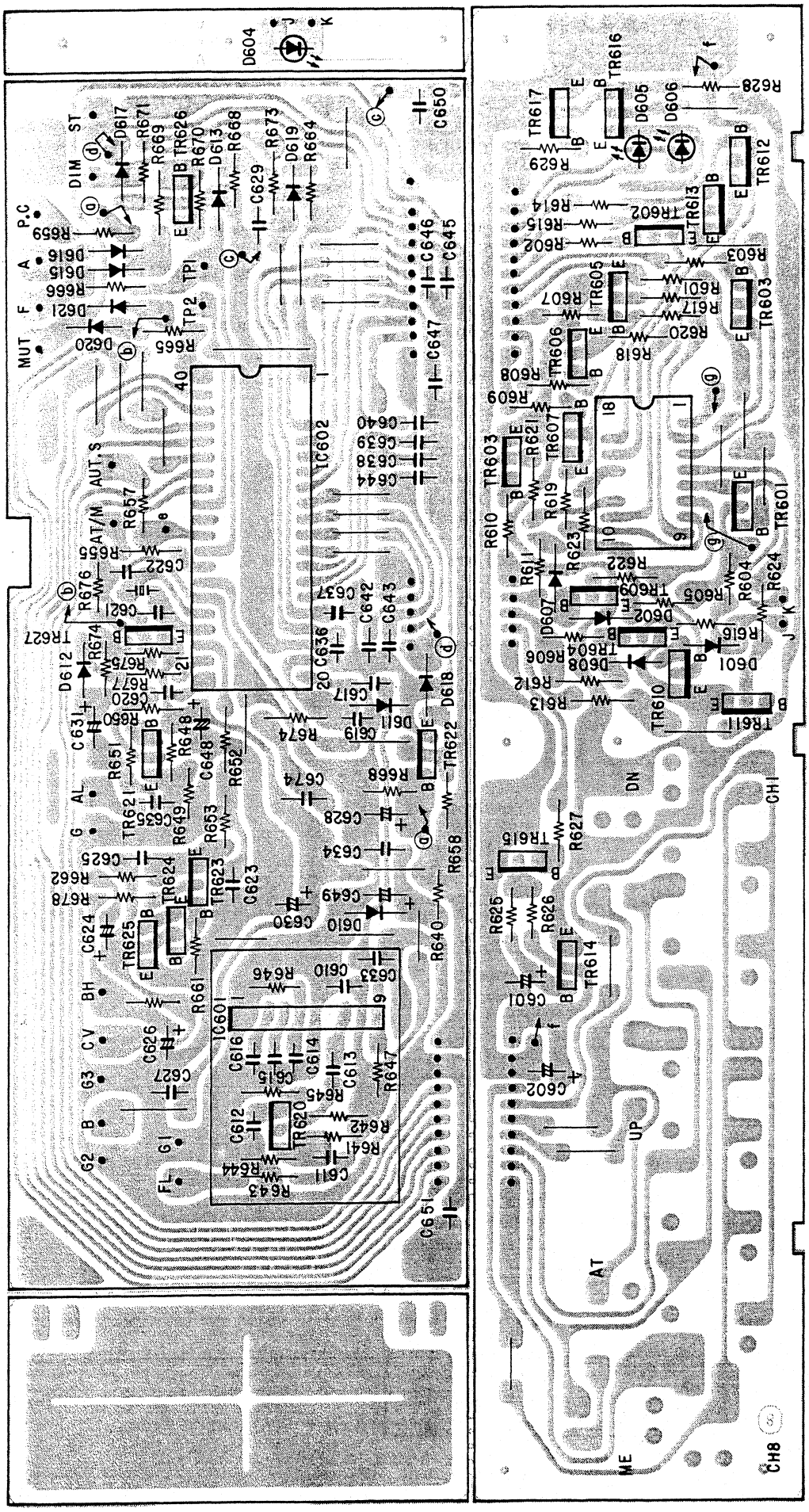
Ref. No.	Part No.	Part Name & Descriptions	
SEMICONDUCTORS			
IC301	2650030004	NJM4558D-D	IC
TR101	2740065002	2SD880(Y)	TRANSISTOR
TR102	2710072009	2SA850(D)	TRANSISTOR
TR103	2740065002	2SD880(Y)	TRANSISTOR
TR104	2730198002	2SC1815(Y)	TRANSISTOR
TR301	2730206004	2SC2320L(F)	TRANSISTOR
TR302	2730206004	2SC2320L(F)	TRANSISTOR
D102	2760246005	RB152	DIODE
D103	2760246005	RB152	DIODE
D104	2760220018	HZ24-1	ZENER
D105	2760256008	HZ-16-2	ZENER
D106	2760256008	HZ-16-2	ZENER
D107	2760218033	HZ9B2	ZENER
D405	2760049008	1S2076	DIODE
D406	2760049008	1S2076	DIODE
D407	3939040002	TLG206 GREEN	LED
D408	3939040002	TLG206 GREEN	LED
D409	3939040002	TLG206 GREEN	LED
D410	3939040002	TLG206 GREEN	LED
RESISTORS			
VR001	2110265005	VARIABLE RESISTOR	250 kohm
VR002	2110265005	VARIABLE RESISTOR	250 kohm
VR003	2110198004	VARIABLE RESISTOR	250 kohm
VR004	2110251006	VARIABLE RESISTOR	100 kohm
R101	2412108006	4.7 kohm ±5% ¼W	CARBON FILM
R102	2412117000	11 kohm ±5% ¼W	CARBON FILM
R103	2442006013	39 ohm ±5% 1W	METAL OXIDE FILM
R104	2442012010	120 ohm ±5% ½W	METAL OXIDE FILM
R105	2442012023	4.7 ohm ±5% ½W	METAL OXIDE FILM
R106	2412088003	680 ohm ±5% ¼W	CARBON FILM
R107	2442022039	22 ohm ±5% ¼W	METAL OXIDE FILM
R108	2442007083	47 ohm ±5% ¼W	METAL OXIDE FILM
R109	2442007083	47 ohm ±5% ¼W	METAL OXIDE FILM
R110	2412099005	2 kohm ±5% ¼W	CARBON FILM
R115	2442012023	4.7 ohm ±5% ½W	METAL OXIDE FILM
R301	2412164008	1 Mohm ±5% ¼W	CARBON FILM
R302	2412164008	1 Mohm ±5% ¼W	CARBON FILM
R303	2412158001	560 kohm ±5% ¼W	CARBON FILM
R304	2412158001	560 kohm ±5% ¼W	CARBON FILM
R305	2412158001	560 kohm ±5% ¼W	CARBON FILM
R306	2412158001	560 kohm ±5% ¼W	CARBON FILM
R307	2412092002	1 kohm ±5% ¼W	CARBON FILM
R308	2412092002	1 kohm ±5% ¼W	CARBON FILM
R309	2412120000	15 kohm ±5% ¼W	CARBON FILM
R310	2412120000	15 kohm ±5% ¼W	CARBON FILM
R311	2412156003	470 kohm ±5% ¼W	CARBON FILM
R312	2412156003	470 kohm ±5% ¼W	CARBON FILM
R313	2412106008	3.9 kohm ±5% ¼W	CARBON FILM
R314	2412106008	3.9 kohm ±5% ¼W	CARBON FILM
R315	2412119008	13 kohm ±5% ¼W	CARBON FILM
R316	2412119008	13 kohm ±5% ¼W	CARBON FILM
R317	2412143003	130 kohm ±5% ¼W	CARBON FILM
R318	2412143003	130 kohm ±5% ¼W	CARBON FILM
R319	2412143003	130 kohm ±5% ¼W	CARBON FILM
R320	2412143003	130 kohm ±5% ¼W	CARBON FILM
R321	2412124006	22 kohm ±5% ¼W	CARBON FILM
R322	2412124006	22 kohm ±5% ¼W	CARBON FILM
R323	2412120000	15 kohm ±5% ¼W	CARBON FILM
R324	2412120000	15 kohm ±5% ¼W	CARBON FILM
R325	2412128002	33 kohm ±5% ¼W	CARBON FILM
R326	2412128002	33 kohm ±5% ¼W	CARBON FILM
R327	2412164008	1 Mohm ±5% ¼W	CARBON FILM

(Con.)

Ref. No.	Part No.	Part Name & Descriptions
R328	2412164008	1 Mohm ±5% ¼W CARBON FILM
R329	2412116001	10 kohm ±5% ¼W CARBON FILM
R330	2412116001	10 kohm ±5% ¼W CARBON FILM
R331	2412104000	3.3 kohm ±5% ¼W CARBON FILM
R332	2412104000	3.3 kohm ±5% ¼W CARBON FILM
R333	2412168004	1.5 Mohm ±5% ¼W CARBON FILM
R334	2412168004	1.5 Mohm ±5% ¼W CARBON FILM
R335	2412110007	5.6 kohm ±5% ¼W CARBON FILM
R336	2412110007	5.6 kohm ±5% ¼W CARBON FILM
R337	2442007009	220 ohm ±5% ¼W METAL OXIDE FILM
R338	2442007009	220 ohm ±5% ¼W METAL OXIDE FILM
R339	2440092003	330 ohm ±5% 2W METAL OXIDE FILM
R340	2440092003	330 ohm ±5% 2W METAL OXIDE FILM
R341	2412124006	22 kohm ±5% ¼W CARBON FILM
R342	2412124006	22 kohm ±5% ¼W CARBON FILM
R456	2412102002	2.7 kohm ±5% ¼W CARBON FILM
		CAPACITORS
C105	2531026001	0.047μF +80,–20% 50V CERAMIC
C106	2544041002	470μF 35V ELECTROLYTIC
C107	2544041002	470μF 35V ELECTROLYTIC
C108	2544138009	47μF 25V ELECTROLYTIC
C109	2544138009	47μF 25V ELECTROLYTIC
C110	2544029008	220μF 25V ELECTROLYTIC
C111	2544028009	100μF 25V ELECTROLYTIC
C112	2531026001	0.047μF +80,–20% 50V CERAMIC
C113	2531026001	0.047μF +80,–20% 50V CERAMIC
C114	2544022005	1000μF 16V ELECTROLYTIC
C115	2544132005	10μF 16V ELECTROLYTIC
C116	2531026001	0.047μF +80,–20% 50V CERAMIC
C117	2551072006	0.01μF ±10% 50V PLASTIC FILM
C118	2544039001	220μF 35V ELECTROLYTIC
C301	2551080001	0.047μF ±10% 50V PLASTIC FILM
C302	2551080001	0.047μF ±10% 50V PLASTIC FILM
C303	2544146004	1μF 50V ELECTROLYTIC
C304	2544146004	1μF 50V ELECTROLYTIC
C305	2544034006	4.7μF 35V ELECTROLYTIC
C306	2544034006	4.7μF 35V ELECTROLYTIC
C307	2533643000	470pF ±5% 50V CERAMIC
C308	2533643000	470pF ±5% 50V CERAMIC
C309	2551072006	0.01μF ±10% 50V PLASTIC FILM
C310	2551072006	0.01μF ±10% 50V PLASTIC FILM
C311	2533613001	27pF ±5% 50V CERAMIC
C312	2533613001	27pF ±5% 50V CERAMIC
C313	2544146004	1μF 50V ELECTROLYTIC
C314	2544146004	1μF 50V ELECTROLYTIC
C315	2544034006	4.7μF 35V ELECTROLYTIC
C316	2544034006	4.7μF 35V ELECTROLYTIC
C317	2531003008	680pF ±10% 50V CERAMIC
C318	2531003008	680pF ±10% 50V CERAMIC
C319	2551080001	0.047μF ±10% 50V PLASTIC FILM
C320	2551080001	0.047μF ±10% 50V PLASTIC FILM
C321	2544139008	100μF 25V ELECTROLYTIC
C322	2544139008	100μF 25V ELECTROLYTIC
C428	2531024003	0.01μF +80,–20% 50V CERAMIC
		OTHER PARTS
	2220677101	P.W. BOARD
	2090047903	0.6 JUMPER WIRE USED 36
	EP-5667H3	TERMINAL USED 25
	2050092040	4P WRAPPING TERMINAL
	2048047007	H/P JACK

Ref. No.	Part No.	Part Name & Descriptions
SW001	2124256000	3P PUSH SWITCH
SW002	2124256000	3P PUSH SWITCH
SW003	2124256000	3P PUSH SWITCH
SW004	2124168004	1P PUSH SWITCH
SW005	2124257009	2P PUSH SWITCH
SW006	2124257009	2P PUSH SWITCH
SW007	2124287008	4P PUSH SWITCH
SW008	2124287008	4P PUSH SWITCH
	4170021009	RADIATOR
	4730354019	TAPPING SCREW (2) 3x8

ETC0161 DISPLAY & KEY UNIT.



ETC0161 DISPLAY & KEY UNIT PARTS LIST

Ref. No.	Part No.	Part Name & Descriptions
		SEMICONDUCTORS
IC601	2630144004	AN6821 IC
IC602	2620275006	MN6045A IC
TR601	2730198015	2SC1815(BL) TRANSISTOR
TR602	2710102021	2SA1015(GR) TRANSISTOR
TR603	2710102021	2SA1015(GR) TRANSISTOR
TR604	2710102021	2SA1015(GR) TRANSISTOR
TR605	2710102021	2SA1015(GR) TRANSISTOR
TR606	2710102021	2SA1015(GR) TRANSISTOR
TR607	2710102021	2SA1015(GR) TRANSISTOR
TR608	2710102021	2SA1015(GR) TRANSISTOR
TR609	2710102021	2SA1015(GR) TRANSISTOR
TR610	2710102021	2SA1015(GR) TRANSISTOR
TR611	2710102021	2SA1015(GR) TRANSISTOR
TR612	2710102021	2SA1015(GR) TRANSISTOR
TR613	2710102021	2SA1015(GR) TRANSISTOR
TR614	2730198015	2SC1815(BL) TRANSISTOR
TR615	2730198015	2SC1815(BL) TRANSISTOR
TR616	2730198015	2SC1815(BL) TRANSISTOR
TR617	2730198015	2SC1815(BL) TRANSISTOR
TR620	2730043021	2SC535(C) TRANSISTOR
TR621	2730025010	2SC461(B) TRANSISTOR
TR622	2730198015	2SC1815(BL) TRANSISTOR
TR623	2730198015	2SC1815(BL) TRANSISTOR
TR625	2730198015	2SC1815(BL) TRANSISTOR
TR626	2730198015	2SC1815(BL) TRANSISTOR
TR627	2710102021	2SA1015(GR) TRANSISTOR
D601	2760049008	1S2076 DIODE
D602	2760049008	1S2076 DIODE
D604	3939032007	TLR206 (RED) LED
D605	3939092005	LED (RED) LED
D606	3939093004	LED (GREEN) LED
D607	2760049008	1S2076 DIODE
D608	2760049008	1S2076 DIODE
D610	2760241000	MZ305B ZENER
D611	2760002016	1N60(P) ZENER
D612	2760049008	1S2076 ZENER
D613	2760049008	1S2076 ZENER
D615	2760049008	1S2076 ZENER
D616	2760049008	1S2076 DIODE
D617	2760049008	1S2076 DIODE
D618	2760049008	1S2076 DIODE
D620	2760049008	1S2076 DIODE
D621	2760049008	1S2076 DIODE
D650	2760002016	1S60(P) DIODE
D651	2760002016	1S60(P) DIODE
D652	2760049008	1S2076 DIODE
		RESISTORS
R601	2412116001	10 kohm ±5% ¼W CARBON FILM
R602	2412096008	1.5 kohm ±5% ¼W CARBON FILM
R603	2412096008	1.5 kohm ±5% ¼W CARBON FILM
R604	2412115002	9.1 kohm ±5% ¼W CARBON FILM
R605	2412115002	9.1 kohm ±5% ¼W CARBON FILM
R606	2412116001	10 kohm ±5% ¼W CARBON FILM
R607	2412116001	10 kohm ±5% ¼W CARBON FILM
R608	2412116001	10 kohm ±5% ¼W CARBON FILM
R609	2412109005	5.1 kohm ±5% ¼W CARBON FILM
R610	2412116001	10 kohm ±5% ¼W CARBON FILM
R611	2412115002	9.1 kohm ±5% ¼W CARBON FILM
R612	2412115002	9.1 kohm ±5% ¼W CARBON FILM
R613	2412116001	10 kohm ±5% ¼W CARBON FILM
R614	2412096008	1.5 kohm ±5% ¼W CARBON FILM
R615	2412096008	1.5 kohm ±5% ¼W CARBON FILM
R616	2412059003	43 ohm ±5% ¼W CARBON FILM
R617	2412059003	43 ohm ±5% ¼W CARBON FILM
R618	2412059003	43 ohm ±5% ¼W CARBON FILM
R619	2412059003	43 ohm ±5% ¼W CARBON FILM

Ref. No.	Part No.	Part Name & Descriptions
R620	2412059003	43 ohm ±5% ¼W CARBON FILM
R621	2412059003	43 ohm ±5% ¼W CARBON FILM
R622	2412059003	43 ohm ±5% ¼W CARBON FILM
R623	2412059003	43 ohm ±5% ¼W CARBON FILM
R624	2412059003	43 ohm ±5% ¼W CARBON FILM
R625	2412068007	100 ohm ±5% ¼W CARBON FILM
R626	2412076002	220 ohm ±5% ¼W CARBON FILM
R627	2412116001	10 kohm ±5% ¼W CARBON FILM
R628	2412109005	5.1 kohm ±5% ¼W CARBON FILM
R629	2412140006	100 kohm ±5% ¼W CARBON FILM
R640	2412060005	47 ohm ±5% ¼W CARBON FILM
R642	2412084007	470 ohm ±5% ¼W CARBON FILM
R641	2412116001	10 kohm ±5% ¼W CARBON FILM
R643	2412074004	180 ohm ±5% ¼W CARBON FILM
R644	2412125005	24 kohm ±5% ¼W CARBON FILM
R645	2412096008	1.5 kohm ±5% ¼W CARBON FILM
R646	2412126004	27 kohm ±5% ¼W CARBON FILM
R647	2412104000	3.3 kohm ±5% ¼W CARBON FILM
R648	2412146000	180 kohm ±5% ¼W CARBON FILM
R649	2412133000	51 kohm ±5% ¼W CARBON FILM
R650	2412104000	3.3 kohm ±5% ¼W CARBON FILM
R651	2412092002	1 kohm ±5% ¼W CARBON FILM
R652	2412111006	6.2 kohm ±5% ¼W CARBON FILM
R653	2412118009	12 kohm ±5% ¼W CARBON FILM
R657	2412116001	10 kohm ±5% ¼W CARBON FILM
R658	2412094000	1.2 kohm ±5% ¼W CARBON FILM
R659	2412161001	750 kohm ±5% ¼W CARBON FILM
R660	2412132001	47 kohm ±5% ¼W CARBON FILM
R661	2412116001	10 kohm ±5% ¼W CARBON FILM
R662	2412107007	4.3 kohm ±5% ¼W CARBON FILM
R663	2412116001	10 kohm ±5% ¼W CARBON FILM
R664	2412094000	1.2 kohm ±5% ¼W CARBON FILM
R665	2412116001	10 kohm ±5% ¼W CARBON FILM
R666	2412116001	10 kohm ±5% ¼W CARBON FILM
R668	2412116001	10 kohm ±5% ¼W CARBON FILM
R669	2412136007	68 kohm ±5% ¼W CARBON FILM
R671	2412094000	1.2 kohm ±5% ¼W CARBON FILM
R673	2412148008	220 kohm ±5% ¼W CARBON FILM
R674	2412094000	1.2 kohm ±5% ¼W CARBON FILM
R675	2412148008	220 kohm ±5% ¼W CARBON FILM
R676	2412116001	10 kohm ±5% ¼W CARBON FILM
R677	2412068007	100 ohm ±5% ¼W CARBON FILM
R678	2412092002	1 kohm ±5% ¼W CARBON FILM
		CAPACITORS
C601	2544066003	2.2μF 50V ELECTROLYTIC
C602	2544011003	220μF 10V ELECTROLYTIC
C610	2531024003	0.01μF +80,−20% 50V CERAMIC
C611	2533631009	150pF ±5% 50V CERAMIC
C612	2533631009	150pF ±5% 50V CERAMIC
C613	2531024003	0.01μF +80,−20% 50V CERAMIC
C614	2531024003	0.01μF +80,−20% 50V CERAMIC
C615	2531024003	0.01μF +80,−20% 50V CERAMIC
C616	2531024003	0.01μF +80,−20% 50V CERAMIC
C617	2531024003	0.01μF +80,−20% 50V CERAMIC
C619	2531024003	0.01μF +80,−20% 50V CERAMIC
C620	2531024003	0.01μF +80,−20% 50V CERAMIC
C621	2533132003	30pF ±5% 50V CERAMIC
C622	2533132003	30pF ±5% 50V CERAMIC
C623	2551078000	0.033μF ±10% 50V PLASTIC FILM
C624	2541035011	2.2μF 35V TANTALUM
C625	2551072006	0.01μF ±10% 50V PLASTIC FILM
C626	2544037003	47μF 35V ELECTROLYTIC
C627	2531024003	0.01μF +80,−20% 50V CERAMIC
C628	2544147003	2.2μF 50V ELECTROLYTIC
C629	2531024003	0.01μF +80,−20% 50V CERAMIC
C630	2544011003	220μF 10V ELECTROLYTIC
C631	2549011008	1μF 50V ELECTROLYTIC

(Con.)

Ref. No.	Part No.	Part Name & Descriptions
C633	2533617007	39pF ±5% 50V CERAMIC
C634	2531024003	0.01μF +80,−20% 50V CERAMIC
C635	2531024003	0.01μF +80,−20% 50V CERAMIC
C636	2531024003	0.01μF +80,−20% 50V CERAMIC
C637	2531024003	0.01μF +80,−20% 50V CERAMIC
C638	2531005006	1500pF ±10% 50V CERAMIC
C639	2531005006	1500pF ±10% 50V CERAMIC
C640	2531005006	1500pF ±10% 50V CERAMIC
C641	2531005006	1500pF ±10% 50V CERAMIC
C642	2531005006	1500pF ±10% 50V CERAMIC
C643	2531005006	1500pF ±10% 50V CERAMIC
C644	2531005006	1500pF ±10% 50V CERAMIC
C645	2531024003	0.01μF +80,−20% 50V CERAMIC
C646	2531024003	0.01μF +80,−20% 50V CERAMIC
C648	2544009002	47μF 10V ELECTROLYTIC
C650	2533620007	51pF ±5% 50V CERAMIC
C651	2531024003	0.01μF +80,−20% 50V CERAMIC

Ref. No.	Part No.	Part Name & Descriptions
		OTHER PARTS
	2220652003	P.W. BOARD
	2050134908	TERMINAL PIN USED 20
	2090047903	0.6 JUMPER WIRE USED 31
	2090008120	JUMPER USED 2
	2090008104	JUMPER USED 1
	2090008133	JUMPER USED 1
	2124253003	PUSH SWITCH (EVQPXR) USED 12
	3939102005	SL-2436-01
	3990012008	X'TAL (11.520)
	4140221004	SHIELD CASE
	1440726008	MASK
	4770096007	PUSH RIVET USED 2

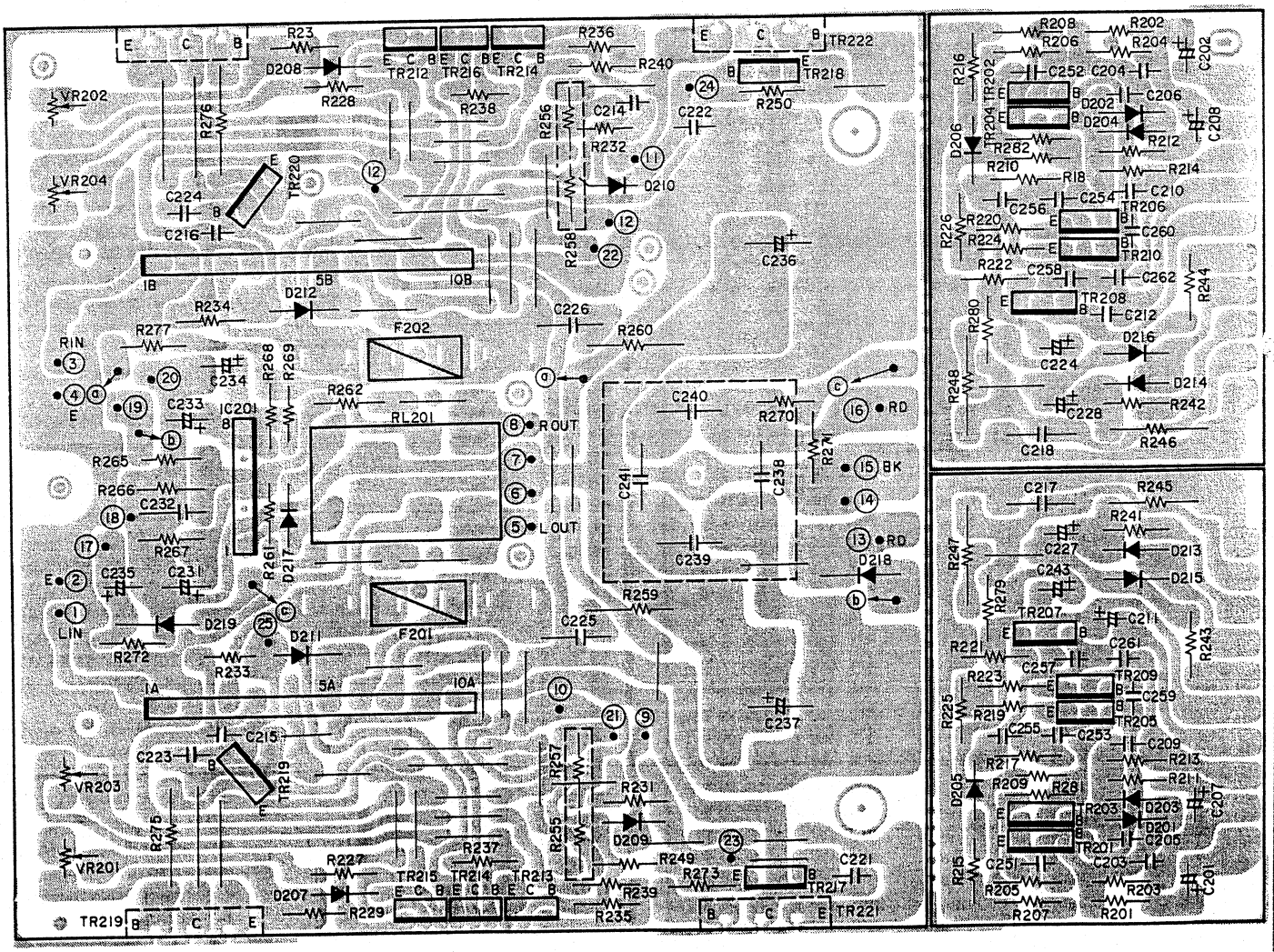
ETC0161C DISPLAY & KEY UNIT PARTS LIST (For EC only)

All parts expect not listed are same as ETC016.

Ref. No.	Part No.	Part Name & Descriptions
R661	2412112005	6.8 kohm ±5% ¼W CARBON

Ref. No.	Part No.	Part Name & Descriptions

PUS0017 POWER AMP & SUPPLY UNIT



PUS0017 POWER AMP & SUPPLY UNIT PARTS LIST

Ref. No.	Part No.	Part Name & Descriptions
		SEMICONDUCTORS
IC201	2630102004	HA12002W IC
TR201	2710094016	2SA970(BL) TRANSISTOR
TR202	2710094016	2SA970(BL) TRANSISTOR
TR203	2710094016	2SA970(BL) TRANSISTOR
TR204	2710094016	2SA970(BL) TRANSISTOR
TR205	2730235004	2SC1841(F) TRANSISTOR
TR206	2730235004	2SC1841(F) TRANSISTOR
TR207	2710131005	2SA988(F) TRANSISTOR
TR208	2710131005	2SA988(F) TRANSISTOR
TR209	2730235004	2SC1841(F) TRANSISTOR
TR210	2730235004	2SC1841(F) TRANSISTOR
TR211	2730198002	2SC1815(Y) TRANSISTOR
TR212	2730198002	2SC1815(Y) TRANSISTOR
TR213	2730198002	2SC1815(Y) TRANSISTOR
TR214	2730198002	2SC1815(Y) TRANSISTOR
TR215	2710102005	2SA1015(Y) TRANSISTOR
TR216	2710102005	2SA1015(Y) TRANSISTOR
TR217	2730236029	2SC2824(Y/O) TRANSISTOR
TR218	2730236029	2SC2824(Y/O) TRANSISTOR
TR219	2710135027	2SA1184(Y/O) TRANSISTOR
TR220	2710135027	2SA1184(Y/O) TRANSISTOR
TR221	2730273008	2SC2581(O) TRANSISTOR
TR222	2730273008	2SC2581(O) TRANSISTOR
TR223	2710160005	2SA1106(O) TRANSISTOR
TR224	2710160005	2SA1106(O) TRANSISTOR
D205	2760049011	1S2076A DIODE
D206	2760049011	1S2076A DIODE
D207	2760049008	1S2076 DIODE
D208	2760049008	1S2076 DIODE
D209	2760049008	1S2076 DIODE
D210	2760049008	1S2076 DIODE
D211	2760049008	1S2076 DIODE
D212	2760049008	1S2076 DIODE
D213	2760051038	HZ7B-2 ZENER
D214	2760051038	HZ7B-2 ZENER
D215	2760051038	HZ7B-2 ZENER
D216	2760051038	HZ7B-2 ZENER
D217	2760049011	1S2076A DIODE
D218	2760191008	W03C DIODE
D219	2760191008	W03C DIODE
D220	2760233005	M4C-51 DIODE
		RESISTORS
VR201	EP-5462H7	SOLID VOLUME
VR202	EP-5462H7	SOLID VOLUME
VR203	EP-5462H19	SOLID VOLUME
VR204	EP-5462H19	SOLID VOLUME
R201	2412092002	1 kohm ±5% ¼W CARBON FILM
R202	2412092002	1 kohm ±5% ¼W CARBON FILM
R203	2412124006	22 kohm ±5% ¼W CARBON FILM
R204	2412124006	22 kohm ±5% ¼W CARBON FILM
R205	2412106008	3.9 kohm ±5% ¼W CARBON FILM
R206	2412106008	3.9 kohm ±5% ¼W CARBON FILM
R207	2412117000	11 kohm ±5% ¼W CARBON FILM
R208	2412117000	11 kohm ±5% ¼W CARBON FILM
R209	2412106008	3.9 kohm ±5% ¼W CARBON FILM
R210	2412106008	3.9 kohm ±5% ¼W CARBON FILM
R211	2412080001	330 ohm ±5% ¼W CARBON FILM
R212	2412080001	330 ohm ±5% ¼W CARBON FILM
R213	2412130003	39 kohm ±5% ¼W CARBON FILM
R214	2412130003	39 kohm ±5% ¼W CARBON FILM
R215	2412072006	150 ohm ±5% ¼W CARBON FILM
R216	2412072006	150 ohm ±5% ¼W CARBON FILM
R217	2410210006	11 kohm ±5% ½W CARBON FILM
R218	2410210006	11 kohm ±5% ½W CARBON FILM
R219	2412052000	22 ohm ±5% ½W CARBON FILM

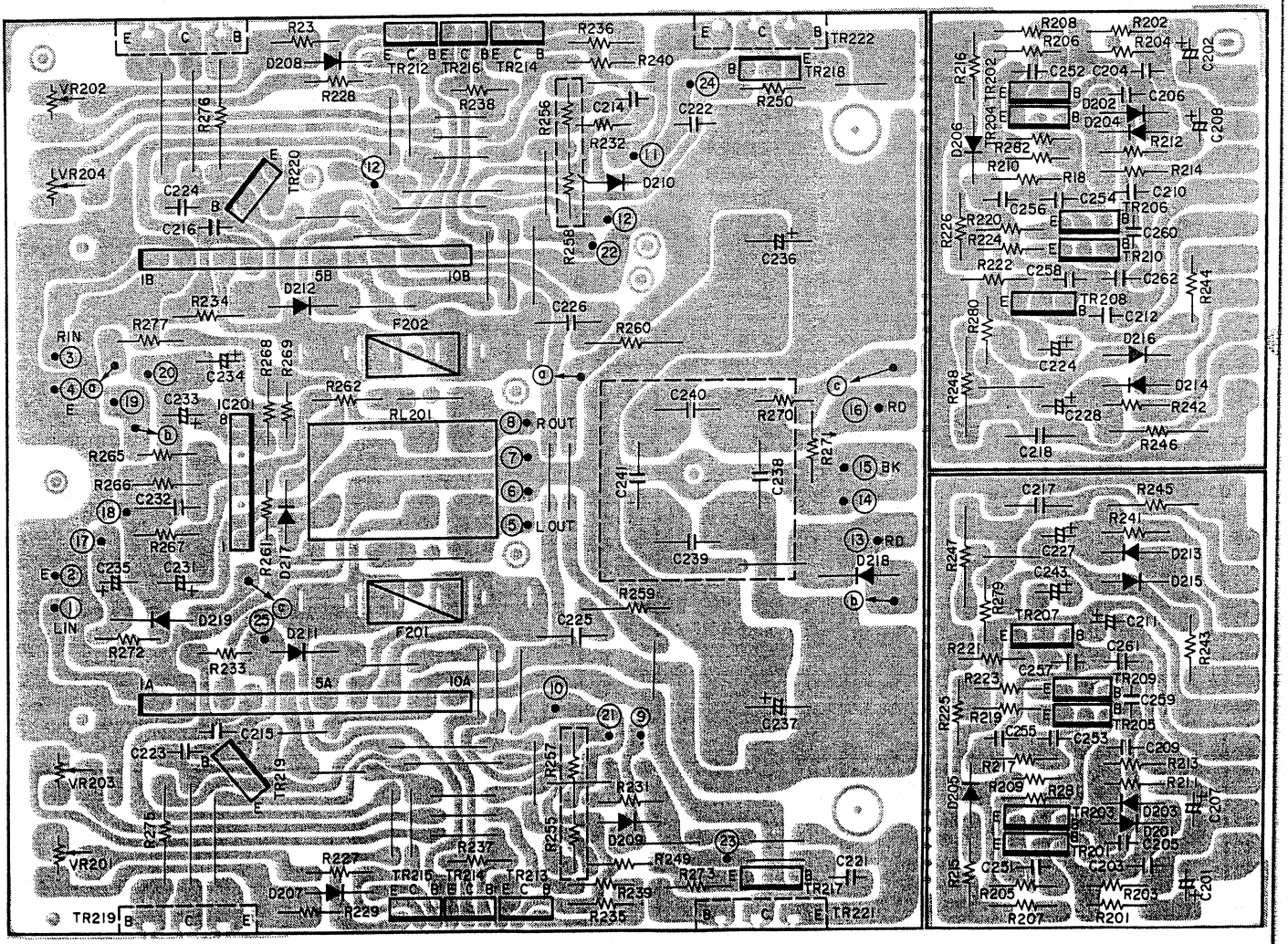
Ref. No.	Part No.	Part Name & Descriptions
R220	2412052000	22 ohm ±5% ½W CARBON FILM
R221	2412072006	150 ohm ±5% ½W CARBON FILM
R222	2412072006	150 ohm ±5% ½W CARBON FILM
R223	2412052000	22 ohm ±5% ½W CARBON FILM
R224	2412052000	22 ohm ±5% ½W CARBON FILM
R225	2412076002	220 ohm ±5% ½W CARBON FILM
R226	2412076002	220 ohm ±5% ½W CARBON FILM
R227	2412084007	470 ohm ±5% ½W CARBON FILM
R228	2412084007	470 ohm ±5% ½W CARBON FILM
R229	2412092002	1 kohm ±5% ½W CARBON FILM
R230	2412092002	1 kohm ±5% ½W CARBON FILM
R231	2442022000	1 kohm ±5% ½W METAL OXIDE FILM
R232	2442022000	1 kohm ±5% ¼W METAL OXIDE FILM
R233	2442022000	1 kohm ±5% ¼W METAL OXIDE FILM
R234	2442022000	1 kohm ±5% ¼W METAL OXIDE FILM
R235	2412121009	16 kohm ±5% ¼W CARBON FILM
R236	2412121009	16 kohm ±5% ¼W CARBON FILM
R237	2412121009	16 kohm ±5% ¼W CARBON FILM
R238	2412121009	16 kohm ±5% ¼W CARBON FILM
R239	2412116001	10 kohm ±5% ¼W CARBON FILM
R240	2412116001	10 kohm ±5% ¼W CARBON FILM
R241	2412092002	1 kohm ±5% ¼W CARBON FILM
R242	2412092002	1 kohm ±5% ¼W CARBON FILM
R243	2412092002	1 kohm ±5% ¼W CARBON FILM
R244	2412092002	1 kohm ±5% ¼W CARBON FILM
R245	2440049027	4.7 kohm ±5% 1W METAL OXIDE FILM
R246	2440049027	4.7 kohm ±5% 1W METAL OXIDE FILM
R247	2440049027	4.7 kohm ±5% 1W METAL OXIDE FILM
R248	2440049027	4.7 kohm ±5% 1W METAL OXIDE FILM
R249	2442007009	220 ohm ±5% ¼W METAL OXIDE FILM
R250	2442007009	220 ohm ±5% ¼W METAL OXIDE FILM
R255	2432026016	0.33/0.33 ohm ±10% 3.15W WIRE WOUND
R256	2432026016	0.33/0.33 ohm ±10% 3.15W WIRE WOUND
R257	2432026016	0.33/0.33 ohm ±10% 3.15W WIRE WOUND
R258	2432026016	0.33/0.33 ohm ±10% 3.15W WIRE WOUND
R259	2440017020	10 ohm ±5% 1W METAL OXIDE FILM
R260	2440017020	10 ohm ±5% 1W METAL OXIDE FILM
R261	2412129001	36 kohm ±5% ¼W CARBON FILM
R262	2412129001	36 kohm ±5% ¼W CARBON FILM
R265	2412110007	5.6 kohm ±5% ¼W CARBON FILM
R266	2412108006	4.7 kohm ±5% ¼W CARBON FILM
R267	2412116001	10 kohm ±5% ¼W CARBON FILM
R268	2440048002	3.9 kohm ±5% 1W METAL OXIDE FILM
R269	2412168004	1.5 Mohm ±5% ¼W CARBON FILM
R270	2412094000	1.2 kohm ±5% ¼W CARBON FILM
R271	2412109005	5.1 kohm ±5% ¼W CARBON FILM
R272	2412161001	750 kohm ±5% ¼W CARBON FILM
R279	2442007009	220 ohm ±5% ¼W METAL OXIDE FILM
R280	2442007009	220 ohm ±5% ¼W METAL OXIDE FILM
R281	2412124006	22 kohm ±5% ¼W CARBON FILM
R282	2412124006	22 kohm ±5% ¼W CARBON FILM
		CAPACITORS
C201	2544146004	1μF 50V ELECTROLYTIC
C202	2544146004	1μF 50V ELECTROLYTIC
C203	2533643000	470pF ±5% 50V CERAMIC
C204	2533643000	470pF ±5% 50V CERAMIC
C207	2544004007	220μF 6.3V ELECTROLYTIC
C208	2544004007	220μF 6.3V ELECTROLYTIC
C209	2533603008	10pF ±0.5pF 50V CERAMIC
C210	2533603008	10pF ±0.5pF 50V CERAMIC
C211	2544010004	100μF 10V ELECTROLYTIC
C212	2544010004	100μF 10V ELECTROLYTIC
C213	2533627000	100pF ±5% 50V CERAMIC

(Con.)

Ref. No.	Part No.	Part Name & Descriptions
C214	2533627000	100pF ±5% 50V CERAMIC
C215	2533627000	100pF ±5% 50V CERAMIC
C216	2533627000	100pF ±5% 50V CERAMIC
C217	2544045008	3.3μF 50V ELECTROLYTIC
C218	2544045008	3.3μF 50V ELECTROLYTIC
C221	2533626001	91pF ±5% 50V CERAMIC
C223	2533626001	91pF ±5% 50V CERAMIC
C225	2531027000	0.1μF +80,–20% 50V CERAMIC
C226	2531027000	0.1μF +80,–20% 50V CERAMIC
C227	2531053003	0.01μF +100,–0% 500V CERAMIC
C228	2531053003	0.01μF +100,–0% 500V CERAMIC
C231	2544004007	220μF 6.3V ELECTROLYTIC
C232	2544054002	22μF 16V ELECTROLYTIC
C233	2544035005	10μF 35V ELECTROLYTIC
C234	2544009002	47μF 10V ELECTROLYTIC
C235	2549014005	0.1μF ±20% 50V CERAMIC
C236	2546048016	6800μF ±20% 63V CERAMIC
C237	2546048016	6800μF ±20% 63V CERAMIC
C243	2544059081	10μF 63V ELECTROLYTIC
C244	2544059081	10μF 63V ELECTROLYTIC
C245	2544150003	10μF 50V ELECTROLYTIC
C246	2544150003	10μF 50V ELECTROLYTIC
C259	2533613001	27pF ±5% 50V CERAMIC
C260	2533613001	27pF ±5% 50V CERAMIC

Ref. No.	Part No.	Part Name & Descriptions
		OTHER PARTS
	2220654205	P.W. BOARD
	2050134908	TERMINAL PIN USED 17
	4170129008	RADIATOR
	4700011007	PAN SCREW WITH S. WASHER 3x10
	4751003006	WASHER φ3
	4730354019	TAPPING SCREW (2) 3x8 USED 6
	4120764002	RADIATOR BRACKET
	2050127009	TERMINAL USED 2
	2061023079	FUSE 5A (125V AC) USED 2
	EP-5870	FUSE HOLDER USED 4
	2090008104	JUMPER ℓ=15mm USED 9
	2090008120	JUMPER ℓ=10mm USED 14
RL201	2140037009	RELAY
	4510064105	REFLECTOR USED 2
	4150185004	INSULATING SHEET USED 2
	2090047903	0.6 JUMPER USED 25
	5130270093	FUSE LABEL

PUS0019 POWER AMP & SUPPLY UNIT (For EC only)



PUS0019 POWER AMP & SUPPLY UNIT PARTS LIST (For EC Only)

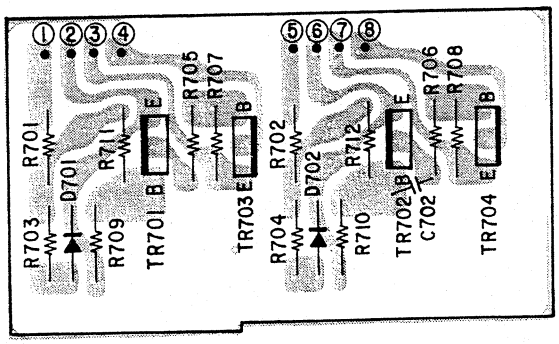
Ref. No.	Part No.	Part Name & Descriptions
		SEMICONDUCTORS
IC201	2630102004	HA12002W IC
TR201	2710094016	2SA970(BL) TRANSISTOR
TR202	2710094016	2SA970(BL) TRANSISTOR
TR203	2710094016	2SA970(BL) TRANSISTOR
TR204	2710094016	2SA970(BL) TRANSISTOR
TR205	2730235004	2SC1841(F) TRANSISTOR
TR206	2730235004	2SC1841(F) TRANSISTOR
TR207	2710131005	2SA988(F) TRANSISTOR
TR208	2710131005	2SA988(F) TRANSISTOR
TR209	2730235004	2SC1841(F) TRANSISTOR
TR210	2730235004	2SC1841(F) TRANSISTOR
TR211	2730198002	2SC1815(Y) TRANSISTOR
TR212	2730198002	2SC1815(Y) TRANSISTOR
TR213	2730198002	2SC1815(Y) TRANSISTOR
TR214	2730198002	2SC1815(Y) TRANSISTOR
TR215	2710102005	2SA1015(Y) TRANSISTOR
TR216	2710102005	2SA1015(Y) TRANSISTOR
TR217	2730236029	2SC2824(Y/O) TRANSISTOR
TR218	2730236029	2SC2824(Y/O) TRANSISTOR
TR219	2710135027	2SA1184(Y/O) TRANSISTOR
TR220	2710135027	2SA1184(Y/O) TRANSISTOR
TR221	2730273008	2SC2581(O) TRANSISTOR
TR222	2730273008	2SC2581(O) TRANSISTOR
TR223	2710160005	2SA1106(O) TRANSISTOR
TR224	2710160005	2SA1106(O) TRANSISTOR
D205	2760049011	1S2076A DIODE
D206	2760049011	1S2076A DIODE
D207	2760049008	1S2076 DIODE
D208	2760049008	1S2076 DIODE
D209	2760049008	1S2076 DIODE
D210	2760049008	1S2076 DIODE
D211	2760049008	1S2076 DIODE
D212	2760049008	1S2076 DIODE
D213	2760051038	HZ7B-2 ZENER
D214	2760051038	HZ7B-2 ZENER
D215	2760051038	HZ7B-2 ZENER
D216	2760051038	HZ7B-2 ZENER
D217	2760049011	1S2076A DIODE
D218	2760191008	W03C DIODE
D219	2760191008	W03C DIODE
D220	2760233005	M4C-51 DIODE
		RESISTORS
VR201	EP-5462H7	SOLID VOLUME
VR202	EP-5462H7	SOLID VOLUME
VR203	EP-5462H19	SOLID VOLUME
VR204	EP-5462H19	SOLID VOLUME
R201	2412092002	1 kohm ±5% ¼W CARBON FILM
R202	2412092002	1 kohm ±5% ¼W CARBON FILM
R203	2412124006	22 kohm ±5% ¼W CARBON FILM
R204	2412124006	22 kohm ±5% ¼W CARBON FILM
R205	2412106008	3.9 kohm ±5% ¼W CARBON FILM
R206	2412106008	3.9 kohm ±5% ¼W CARBON FILM
R207	2412117000	11 kohm ±5% ¼W CARBON FILM
R208	2412117000	11 kohm ±5% ¼W CARBON FILM
R209	2412106008	3.9 kohm ±5% ¼W CARBON FILM
R210	2412106008	3.9 kohm ±5% ¼W CARBON FILM
R211	2412080001	330 ohm ±5% ¼W CARBON FILM
R212	2412080001	330 ohm ±5% ¼W CARBON FILM
R213	2412130003	39 kohm ±5% ¼W CARBON FILM
R214	2412130003	39 kohm ±5% ¼W CARBON FILM
R215	2412072006	150 ohm ±5% ¼W CARBON FILM
R216	2412072006	150 ohm ±5% ¼W CARBON FILM
R217	2410210006	11 kohm ±5% ½W CARBON FILM
R218	2410210006	11 kohm ±5% ½W CARBON FILM
R219	2412052000	22 ohm ±5% ¼W CARBON FILM

Ref. No.	Part No.	Part Name & Descriptions
R220	2412052000	22 ohm ±5% ¼W CARBON FILM
R221	2412072006	150 ohm ±5% ¼W CARBON FILM
R222	2412072006	150 ohm ±5% ¼W CARBON FILM
R223	2412052000	22 ohm ±5% ¼W CARBON FILM
R224	2412052000	22 ohm ±5% ¼W CARBON FILM
R225	2412076002	220 ohm ±5% ¼W CARBON FILM
R226	2412076002	220 ohm ±5% ¼W CARBON FILM
R227	2412084007	470 ohm ±5% ¼W CARBON FILM
R228	2412084007	470 ohm ±5% ¼W CARBON FILM
R229	2412092002	1 kohm ±5% ¼W CARBON FILM
R230	2412092002	1 kohm ±5% ¼W CARBON FILM
R231	2442022000	1 kohm ±5% ¼W METAL OXIDE FILM
R232	2442022000	1 kohm ±5% ¼W METAL OXIDE FILM
R233	2442022000	1 kohm ±5% ¼W METAL OXIDE FILM
R234	2442022000	1 kohm ±5% ¼W METAL OXIDE FILM
R235	2412121009	16 kohm ±5% ¼W CARBON FILM
R236	2412121009	16 kohm ±5% ¼W CARBON FILM
R237	2412121009	16 kohm ±5% ¼W CARBON FILM
R238	2412121009	16 kohm ±5% ¼W CARBON FILM
R239	2412116001	10 kohm ±5% ¼W CARBON FILM
R240	2412116001	10 kohm ±5% ¼W CARBON FILM
R241	2442022000	1 kohm ±5% ¼W METAL OXIDE FILM
R242	2442022000	1 kohm ±5% ¼W METAL OXIDE FILM
R243	2442022000	1 kohm ±5% ¼W METAL OXIDE FILM
R244	2442022000	1 kohm ±5% ¼W METAL OXIDE FILM
R245	2440049027	4.7 kohm ±5% 1W METAL OXIDE FILM
R246	2440049027	4.7 kohm ±5% 1W METAL OXIDE FILM
R247	2440049027	4.7 kohm ±5% 1W METAL OXIDE FILM
R248	2440049027	4.7 kohm ±5% 1W METAL OXIDE FILM
R249	2442007009	220 ohm ±5% ¼W METAL OXIDE FILM
R250	2442007009	220 ohm ±5% ¼W METAL OXIDE FILM
R255	2432026016	0.33/0.33 ohm ±10% 3.15W WIRE WOUND
R256	2432026016	0.33/0.33 ohm ±10% 3.15W WIRE WOUND
R257	2432026016	0.33/0.33 ohm ±10% 3.15W WIRE WOUND
R258	2432026016	0.33/0.33 ohm ±10% 3.15W WIRE WOUND
R259	2440017020	10 ohm ±5% 1W METAL OXIDE FILM
R260	2440017020	10 ohm ±5% 1W METAL OXIDE FILM
R261	2412129001	36 kohm ±5% ¼W CARBON FILM
R262	2412129001	36 kohm ±5% ¼W CARBON FILM
R265	2412110007	5.6 kohm ±5% ¼W CARBON FILM
R266	2412108006	4.7 kohm ±5% ¼W CARBON FILM
R267	2412116001	10 kohm ±5% ¼W CARBON FILM
R268	2440048002	3.9 kohm ±5% 1W METAL OXIDE FILM
R269	2412168004	1.5 Mohm ±5% ¼W CARBON FILM
R270	2412094009	1.2 kohm ±5% ¼W CARBON FILM
R271	2412109005	5.1 kohm ±5% ¼W CARBON FILM
R272	2412161001	750 kohm ±5% ¼W CARBON FILM
R273	2442012023	4.7 ohm ±5% ½W METAL OXIDE FILM
R274	2442012023	4.7 ohm ±5% ½W METAL OXIDE FILM
R275	2442012023	4.7 ohm ±5% ½W METAL OXIDE FILM
R276	2442012023	4.7 ohm ±5% ½W METAL OXIDE FILM
R277	2442012023	4.7 ohm ±5% ½W METAL OXIDE FILM
R279	2442007009	220 ohm ±5% ¼W METAL OXIDE FILM
R280	2442007009	220 ohm ±5% ¼W METAL OXIDE FILM
R281	2412124006	22 kohm ±5% ¼W CARBON FILM
R282	2412124006	22 kohm ±5% ¼W CARBON FILM
		CAPACITORS
C201	2544146004	1μF 50V ELECTROLYTIC
C202	2544146004	1μF 50V ELECTROLYTIC
C203	2533643000	470pF ±5% 50V CERAMIC
C204	2533643000	470pF ±5% 50V CERAMIC
C207	2544004007	220μF 6.3V ELECTROLYTIC

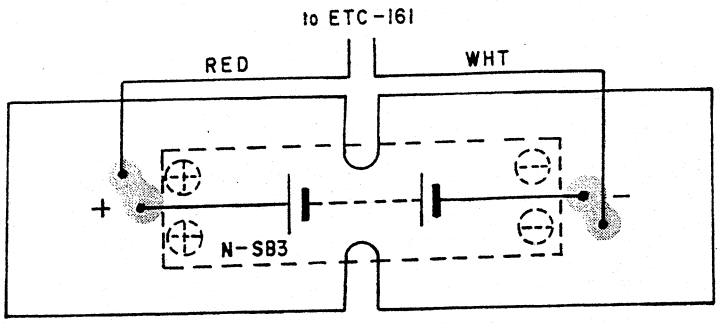
(Con.)

Ref. No.	Part No.	Part Name & Descriptions
C208	2544004007	220μF 6.3V ELECTROLYTIC
C209	2533603008	10pF ±0.5pF 50V CERAMIC
C210	2533603008	10pF ±0.5pF 50V CERAMIC
C211	2544010004	100μF 10V ELECTROLYTIC
C212	2544010004	100μF 10V ELECTROLYTIC
C213	2533627000	100pF ±5% 50V CERAMIC
C214	2533627000	100pF ±5% 50V CERAMIC
C215	2533627000	100pF ±5% 50V CERAMIC
C216	2533627000	100pF ±5% 50V CERAMIC
C217	2544045008	3.3μF 50V ELECTROLYTIC
C218	2544045008	3.3μF 50V ELECTROLYTIC
C221	2533626001	91pF ±5% 50V CERAMIC
C222	2533626001	91pF ±5% 50V CERAMIC
C225	2531027000	0.1μF +80,–20% 50V CERAMIC
C226	2531027000	0.1μF +80,–20% 50V CERAMIC
C231	2544004007	220μF 6.3V ELECTROLYTIC
C232	2544054002	22μF 16V ELECTROLYTIC
C233	2544035005	10μF 35V ELECTROLYTIC
C234	2544009002	47μF 10V ELECTROLYTIC
C235	2549014005	0.1μF ±20% 50V ELECTROLYTIC
C236	2546048016	6800μF ±20% 63V ELECTROLYTIC
C237	2546048016	6800μF ±20% 63V ELECTROLYTIC
C243	2544059081	10μF ±20% 63V ELECTROLYTIC
C244	2544059081	10μF 63V ELECTROLYTIC
C245	2544150003	1μF 50V ELECTROLYTIC
C246	2544150003	1μF 50V ELECTROLYTIC
C259	2533613001	27pF ±5% 50V CERAMIC
C260	2533613001	27pF ±5% 50V CERAMIC
		OTHER PARTS
	2220678100	P.W. BOARD
	4170129008	RADIATOR USED 2
	4700011007	PAN SCREW WITH S. WASHER 3x10 USED 4
	4751003006	WASHER φ3 USED 4
	4730354019	TAPPING SCREW (2) 3x8 USED 6
	4120764002	RADIATOR BRACKET USED 2
	EP-5667H3	TERMINAL USED 18
	2061023079	FUSE 5A 125V AC USED 2
	EP-5870	FUSE HOLDER USED 4
	2090008120	JUMPER P=10mm USED 14
	2090008104	JUMPER P=15mm USED 9
RL201	2140037009	RELAY
	4510064105	REFLECTOR USED 2
	2090047903	0.6 JUMPER WIRE USED 25
	5130607035	FUSE LABEL

ETC0169 BIAS UNIT



ETC0168 BATTERY UNIT



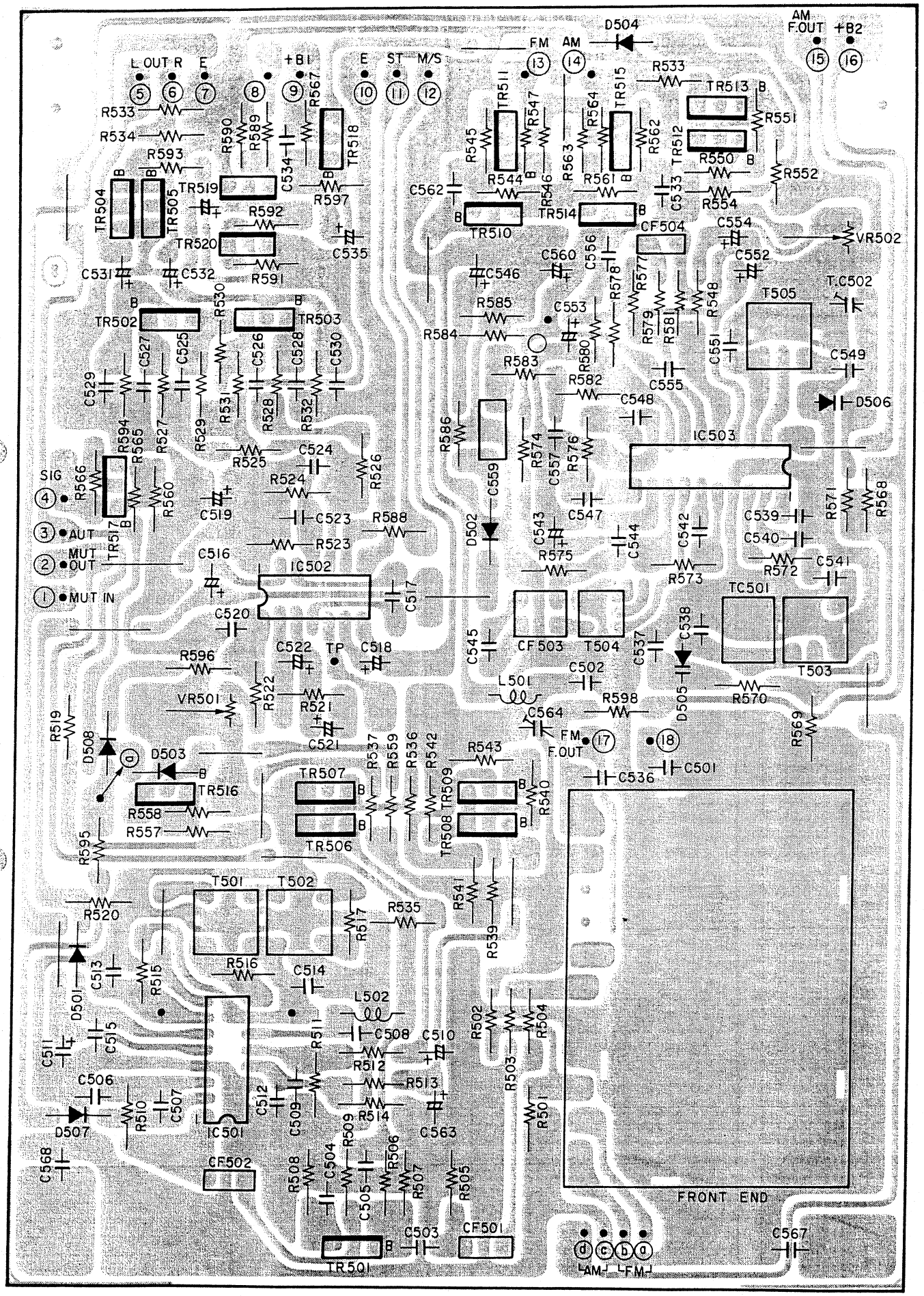
ETC0168 BATTERY UNIT PARTS LIST

Ref. No.	Part No.	Part Name & Descriptions
		GENERAL
	2220670001	P.W. BOARD
	3940004008	N-SB3 BATTERY
	4450033005	WIRE CLAMP BAND USED 1

ETC0169 BIAS UNIT PARTS LIST

Ref. No.	Part No.	Part Name & Descriptions
		SEMICONDUCTORS
TR701	2710113010	2SA999(E) TRANSISTOR
TR702	2710113010	2SA999(E) TRANSISTOR
TR703	2730198002	2SC1815(Y) TRANSISTOR
TR704	2730198002	2SC1815(Y) TRANSISTOR
D701	2760049008	1S2076 DIODE
D702	2760049008	1S2076 DIODE
		RESISTORS
R701	2412313095	120 ohm ±2% ¼W CARBON FILM (FUSIBLE)
R702	2412313095	120 ohm ±2% ¼W CARBON FILM (FUSIBLE)
R703	2412313053	1 kohm ±2% ¼W CARBON FILM (FUSIBLE)
R704	2412313053	1 kohm ±2% ¼W CARBON FILM (FUSIBLE)
R705	2412116001	10 kohm ±5% ¼W CARBON FILM
R706	2412116001	10 kohm ±5% ¼W CARBON FILM
R707	2412116001	10 kohm ±5% ¼W CARBON FILM
R708	2412116001	10 kohm ±5% ¼W CARBON FILM
R709	2412097007	1.6 kohm ±5% ¼W CARBON FILM
R710	2412097007	1.6 kohm ±5% ¼W CARBON FILM
R711	2412104000	3.3 kohm ±5% ¼W CARBON FILM
R712	2412104000	3.3 kohm ±5% ¼W CARBON FILM
		CAPACITORS
C701	2533629008	120pF ±5% 50V CERAMIC
C702	2533629008	120pF ±5% 50V CERAMIC
		OTHER PART
	2220672009	P.W. BOARD

ETC0162 TUNER UNIT

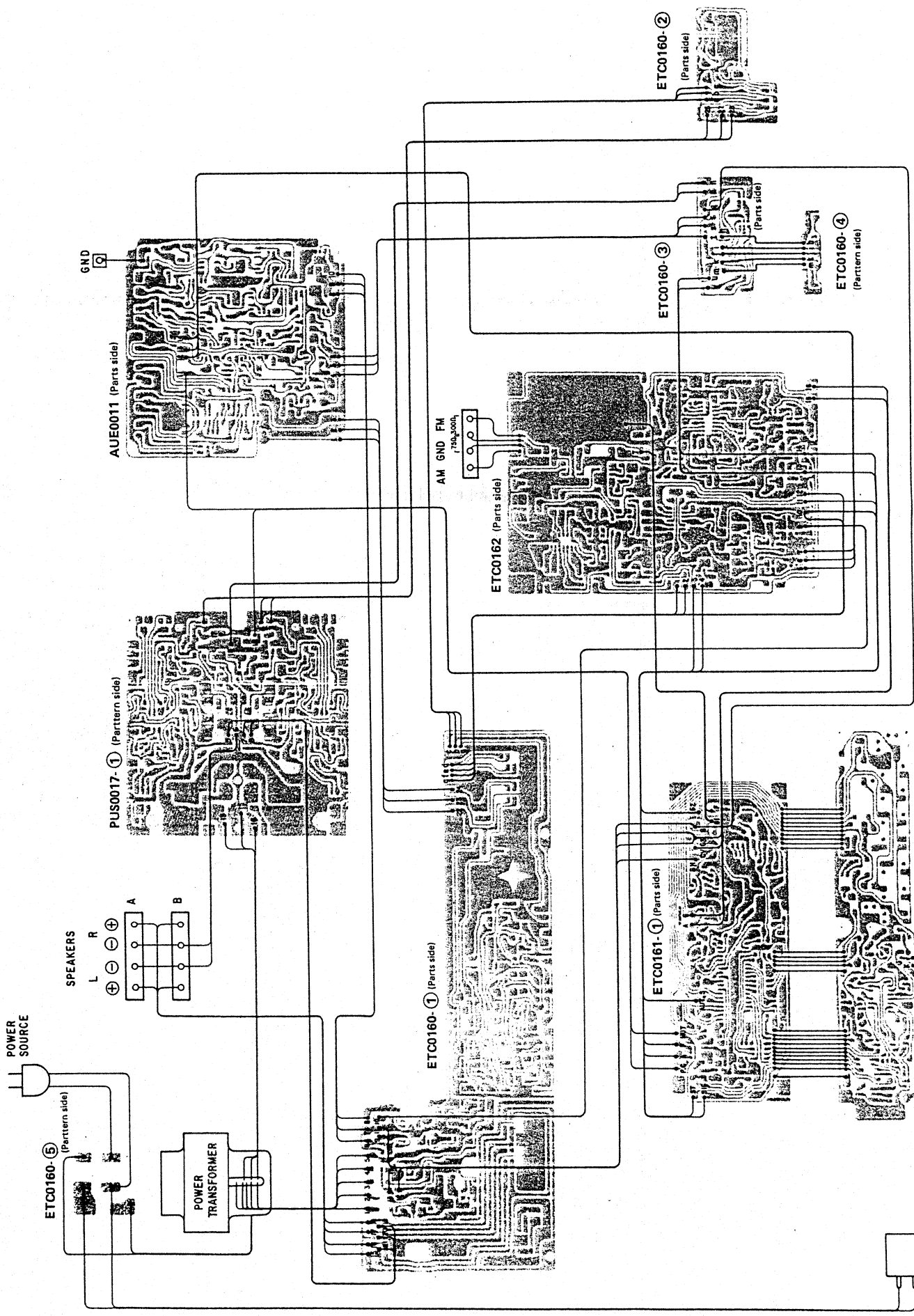


ETC0162 TUNER UNIT PARTS LIST

Ref. No.	Part No.	Part Name & Descriptions
		SEMICONDUCTORS
IC501	2630051003	HA1137W IC
IC502	2630043011	HA-1156(R) IC
IC503	2630145003	LA1245 IC
TR501	2730025010	2SC461(R) TRANSISTOR
TR502	2710113007	2SA999(F) TRANSISTOR
TR503	2710113007	2SA999(F) TRANSISTOR
TR506	2730204019	2SC2320(F) TRANSISTOR
TR507	2730204019	2SC2320(F) TRANSISTOR
TR508	2730204019	2SC2320(F) TRANSISTOR
TR509	2730204019	2SC2320(F) TRANSISTOR
TR510	2710113007	2SA999(F) TRANSISTOR
TR511	2730204019	2SC2320(F) TRANSISTOR
TR512	2730204019	2SC2320(F) TRANSISTOR
TR513	2730204019	2SC2320(F) TRANSISTOR
TR514	2710113007	2SA999(F) TRANSISTOR
TR515	2730204019	2SC2320(F) TRANSISTOR
TR516	2730204019	2SC2320(F) TRANSISTOR
TR517	2730204019	2SC2320(F) TRANSISTOR
TR518	2730201009	2SC2236(Y) TRANSISTOR
D501	2760049008	1S2076 DIODE
D502	2760049008	1S2076 DIODE
D503	2760049008	1S2076 DIODE
D504	2760049008	1S2076 DIODE
D505	2760302004	SVC321SP-D2 VARACTOR
D506	2760302004	SVC321SP-D2 VARACTOR
D507	2760049008	1S2076 DIODE
D508	2760049008	1S2076 DIODE
		RESISTORS
VR501	2116000015	SEMI FIXED RESISTOR 10 kohm
VR502	2116000044	SEMI FIXED RESISTOR 50 kohm
R501	2412118009	12 kohm ±5% ¼W CARBON FILM
R502	2412123007	20 kohm ±5% ¼W CARBON FILM
R503	2412086005	560 ohm ±5% ¼W CARBON FILM
R504	2412068007	100 ohm ±5% ¼W CARBON FILM
R505	2412080001	330 ohm ±5% ¼W CARBON FILM
R506	2412116001	10 kohm ±5% ¼W CARBON FILM
R507	2412098006	1.8 kohm ±5% ¼W CARBON FILM
R508	2412092002	1 kohm ±5% ¼W CARBON FILM
R509	2412080001	330 ohm ±5% ¼W CARBON FILM
R510	2412080001	330 ohm ±5% ¼W CARBON FILM
R511	2412132001	47 kohm ±5% ¼W CARBON FILM
R512	2412100004	2.2 kohm ±5% ¼W CARBON FILM
R513	2412094000	1.2 kohm ±5% ¼W CARBON FILM
R514	2412128002	33 kohm ±5% ¼W CARBON FILM
R515	2412113004	7.5 kohm ±5% ¼W CARBON FILM
R516	2412121009	16 kohm ±5% ¼W CARBON FILM
R517	2412099005	2 kohm ±5% ¼W CARBON FILM
R518	2412118009	12 kohm ±5% ¼W CARBON FILM
R519	2412116001	10 kohm ±5% ¼W CARBON FILM
R520	2412140006	100 kohm ±5% ¼W CARBON FILM
R521	2412100004	2.2 kohm ±5% ¼W CARBON FILM
R522	2412121009	16 kohm ±5% ¼W CARBON FILM
R523	2412102002	2.7 kohm ±5% ¼W CARBON FILM
R524	2412102002	2.7 kohm ±5% ¼W CARBON FILM
R525	2412116001	10 kohm ±5% ¼W CARBON FILM
R526	2412116001	10 kohm ±5% ¼W CARBON FILM
R527	2412116001	10 kohm ±5% ¼W CARBON FILM
R528	2412116001	10 kohm ±5% ¼W CARBON FILM
R529	2412091003	910 ohm ±5% ¼W CARBON FILM
R530	2412126004	27 kohm ±5% ¼W CARBON FILM
R531	2412091003	910 ohm ±5% ¼W CARBON FILM
R532	2412110007	5.6 kohm ±5% ¼W CARBON FILM
R533	2412140006	100 kohm ±5% ¼W CARBON FILM
R534	2412140006	100 kohm ±5% ¼W CARBON FILM
R535	2412116001	10 kohm ±5% ¼W CARBON FILM

Ref. No.	Part No.	Part Name & Descriptions
R536	2412116001	10 kohm ±5% ¼W CARBON FILM
R537	2412116001	10 kohm ±5% ¼W CARBON FILM
R539	2412116001	10 kohm ±5% ¼W CARBON FILM
R540	2412140006	100 kohm ±5% ¼W CARBON FILM
R541	2412116001	10 kohm ±5% ¼W CARBON FILM
R542	2412076002	220 ohm ±5% ¼W CARBON FILM
R543	2412128002	33 kohm ±5% ¼W CARBON FILM
R544	2412140006	100 kohm ±5% ¼W CARBON FILM
R545	2412110007	5.6 kohm ±5% ¼W CARBON FILM
R546	2412116001	10 kohm ±5% ¼W CARBON FILM
R547	2412110007	5.6 kohm ±5% ¼W CARBON FILM
R548	2412123007	20 kohm ±5% ¼W CARBON FILM
R550	2412116001	10 kohm ±5% ¼W CARBON FILM
R551	2412140006	100 kohm ±5% ¼W CARBON FILM
R552	2412128002	33 kohm ±5% ¼W CARBON FILM
R553	2412076002	220 ohm ±5% ¼W CARBON FILM
R554	2412116001	10 kohm ±5% ¼W CARBON FILM
R557	2412116001	10 kohm ±5% ¼W CARBON FILM
R558	2412116001	10 kohm ±5% ¼W CARBON FILM
R559	2412116001	10 kohm ±5% ¼W CARBON FILM
R560	2412116001	10 kohm ±5% ¼W CARBON FILM
R561	2412140006	100 kohm ±5% ¼W CARBON FILM
R562	2412110007	5.6 kohm ±5% ¼W CARBON FILM
R563	2412116001	10 kohm ±5% ¼W CARBON FILM
R564	2412110007	5.6 kohm ±5% ¼W CARBON FILM
R565	2412116001	10 kohm ±5% ¼W CARBON FILM
R566	2412087004	620 ohm ±5% ¼W CARBON FILM
R567	2412086005	560 ohm ±5% ¼W CARBON FILM
R568	2412150009	270 kohm ±5% ¼W CARBON FILM
R569	2412146000	180 kohm ±5% ¼W CARBON FILM
R570	2412140006	100 kohm ±5% ¼W CARBON FILM
R571	2412140006	100 kohm ±5% ¼W CARBON FILM
R572	2412076002	220 ohm ±5% ¼W CARBON FILM
R573	2412096008	1.5 kohm ±5% ¼W CARBON FILM
R574	2412068007	100 ohm ±5% ¼W CARBON FILM
R575	2412104000	3.3 kohm ±5% ¼W CARBON FILM
R576	2412084007	470 ohm ±5% ¼W CARBON FILM
R577	2412116001	10 kohm ±5% ¼W CARBON FILM
R578	2412134009	56 kohm ±5% ¼W CARBON FILM
R579	2412063002	62 ohm ±5% ¼W CARBON FILM
R580	2412076002	220 ohm ±5% ¼W CARBON FILM
R581	2412116001	10 kohm ±5% ¼W CARBON FILM
R582	2412092002	1 kohm ±5% ¼W CARBON FILM
R583	2412126004	27 kohm ±5% ¼W CARBON FILM
R584	2412076002	220 ohm ±5% ¼W CARBON FILM
R585	2412100004	2.2 kohm ±5% ¼W CARBON FILM
R586	2412132001	47 kohm ±5% ¼W CARBON FILM
R588	2412087004	620 ohm ±5% ¼W CARBON FILM
R594	2412110007	5.6 kohm ±5% ¼W CARBON FILM
R595	2412158001	560 kohm ±5% ¼W CARBON FILM
R596	2412140006	100 kohm ±5% ¼W CARBON FILM
R597	2412114003	8.2 kohm ±5% ¼W CARBON FILM
R598	2412114003	8.2 kohm ±5% ¼W CARBON FILM
		CAPACITORS
C502	2531024003	0.01μF +80,–20% 50V CERAMIC
C503	2531024003	0.01μF +80,–20% 50V CERAMIC
C504	2531024003	0.01μF +80,–20% 50V CERAMIC
C505	2531024003	0.01μF +80,–20% 50V CERAMIC
C506	2531024003	0.01μF +80,–20% 50V CERAMIC
C507	2531024003	0.01μF +80,–20% 50V CERAMIC
C508	2531024003	0.01μF +80,–20% 50V CERAMIC
C509	2531024003	0.01μF +80,–20% 50V CERAMIC
C510	2544146004	1μF 50V ELECTROLYTIC
C511	2544149001	4.7μF 50V ELECTROLYTIC
C512	2531024003	0.01μF +80,–20% 50V CERAMIC
C513	2544145005	0.47μF 50V ELECTROLYTIC
C515	2533627000	100pF ±5% 50V CERAMIC

E3 (For U.S.A.)



(Con.)

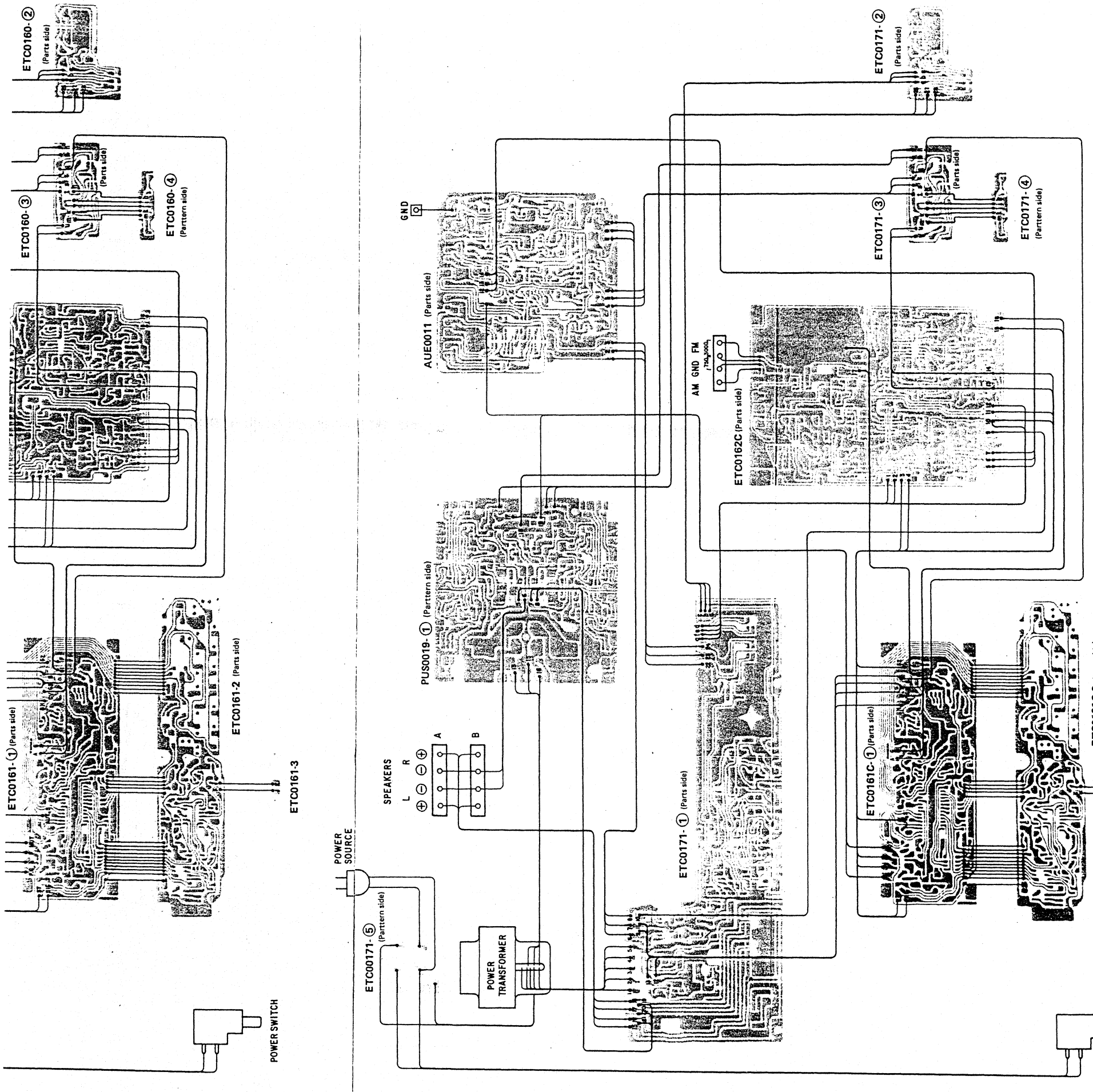
Ref. No.	Part No.	Part Name & Descriptions
C516	2544045008	3.3μF 50V ELECTROLYTIC
C517	2551080001	0.047μF ±10% 50V PLASTIC FILM
C518	2544145005	0.47μF 50V ELECTROLYTIC
C519	2544021006	470μF 16V ELECTROLYTIC
C520	2556091008	470pF ±5% 50V PLASTIC FILM
C521	2544145005	0.47μF 50V ELECTROLYTIC
C522	2544145005	0.047μF 50V ELECTROLYTIC
C523	2551121070	0.027μF ±5% 50V PLASTIC FILM
C524	2551121070	0.027μF ±5% 50V PLASTIC FILM
C525	2531007004	3300pF ±10% 50V CERAMIC
C526	2531007004	3300pF ±10% 50V CERAMIC
C527	2533640003	360pF ±5% 50V CERAMIC
C528	2533640003	360pF ±5% 50V CERAMIC
C529	2531005006	1500pF ±10% 50V CERAMIC
C530	2531005006	1500pF ±10% 50V CERAMIC
C531	2544146004	1μF 50V ELECTROLYTIC
C532	2544146004	1μF 50V ELECTROLYTIC
C533	2531024003	0.01μF +80,−20% 50V CERAMIC
C534	2531024003	0.01μF +80,−20% 50V CERAMIC
C535	2544021006	470μF 16V ELECTROLYTIC
C536	2531024003	0.01μF +80,−20% 50V CERAMIC
C537	2531024003	0.01μF +80,−20% 50V CERAMIC
C538	2534342041	5pF ±0.25pF 50V CERAMIC
C539	2531024003	0.01μF +80,−20% 50V CERAMIC
C540	2531024003	0.01μF +80,−20% 50V CERAMIC
C541	2531024003	0.01μF +80,−20% 50V CERAMIC
C542	2531024003	0.01μF +80,−20% 50V CERAMIC

Ref. No.	Part No.	Part Name & Descriptions
C543	2544132005	10μF 16V ELECTROLYTIC
C544	2531024003	0.01μF +80,−20% 50V CERAMIC
C545	2533623004	68pF ±5% 50V CERAMIC
C546	2544136001	100μF 16V ELECTROLYTIC
C547	2531024003	0.01μF +80,−20% 50V CERAMIC
C548	2531006005	2200pF ±10% 50V CERAMIC
C549	2556090009	430pF ±5% 50V PLASTIC FILM
C551	2531024003	0.01μF +80,−20% 50V CERAMIC
C553	2544134003	33μF 16V ELECTROLYTIC
C554	2544145005	0.47μF 50V ELECTROLYTIC
C555	2531024003	0.01μF +80,−20% 50V CERAMIC
C556	2531024003	0.01μF +80,−20% 50V CERAMIC
C557	2551121025	0.01μF ±5% 50V PLASTIC FILM
C559	2551082009	0.068μF ±10% 50V PLASTIC FILM
C560	2544136001	100μF 16V ELECTROLYTIC
C562	2531024003	0.01μF +80,−20% 50V CERAMIC
C563	2544145005	0.47μF 50V ELECTROLYTIC
C564	2551138005	0.033μF ±5% 50V PLASTIC FILM
C565	2531024003	0.01μF +80,−20% 50V CERAMIC
C566	2531024003	0.01μF +80,−20% 50V CERAMIC
C569	2544015009	10μF 16V ELECTROLYTIC
C570	2544015009	10μF 16V ELECTROLYTIC
C571	2533600001	7pF ±0.5pF 50V CERAMIC
C572	2544044009	1μF 50V ELECTROLYTIC
TC501	2130015002	TRIMMER CONDENCER
TC502	2130014003	TRIMMER CONDENCER

Ref. No.	Part No.	Part Name & Descriptions
		COIL TRANS (included C. Filter)
L501	TRT0565H1	INDUCTOR
L502	TRT0565H1	INDUCTOR
T501	2312024002	IF DET TRANS (A)
T502	2312025001	IF DET TRANS (B)
T503	2311061008	MW ANT. TRANS
T504	2310036005	AM IFT ASSY
T505	2311065004	MW OSC COIL
CF501	2610025004	CERAMIC FILTER
CF502	2610025004	CERAMIC FILTER
CF503	2610032000	CERAMIC FILTER (SFZ450A3L)
CF504	2610031001	CERAMIC FILTER (BFU450C4)
		OTHER PARTS
	2220653109	P.W. BOARD
	2050134908	TERMINAL PIN USED 18
	2090047903	0.6 JUMPER WIRE USED 12
	2090008117	JUMPER P=10mm USED 2
	2090008120	JUMPER P=12.5mm USED 1
	2160034008	FRONT END

CONNECTION DIAGRAM

EC (For CANADA)



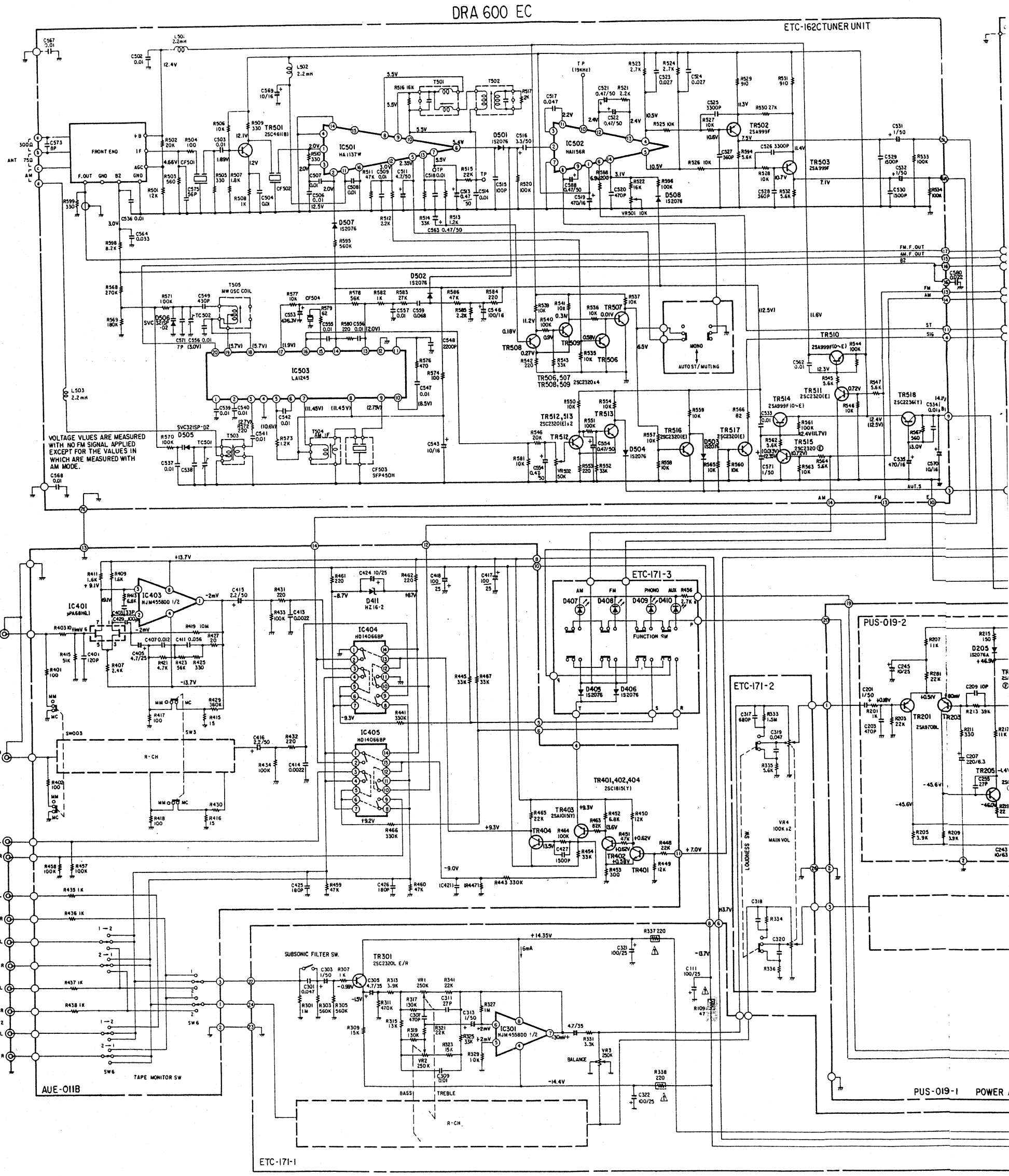
Ref. No.	Part No.	Part Name & Descriptions
	COIL TRANS (included C. Filter)	
L501	TRT0565H1	INDUCTOR
L502	TRT0565H1	INDUCTOR
T501	2312024002	IF DET TRANS (A)
T502	2312025001	IF DET TRANS (B)
T503	2311061008	MW ANT. TRANS
T504	2310036005	AM IFT ASSY
T505	2311065004	MW OSC COIL
CF501	2610025004	CERAMIC FILTER
CF502	2610025004	CERAMIC FILTER
CF503	2610032000	CERAMIC FILTER (SFZ450A3L)
CF504	2610031001	CERAMIC FILTER (BFU450C4)
	OTHER PARTS	
	2220653109	P.W. BOARD
	2050134908	TERMINAL PIN USED 18
	2090047903	0.6 JUMPER WIRE USED 12
	2090008117	JUMPER P=10mm USED 2
	2090008120	JUMPER P=12.5mm USED 1
	2160034008	FRONT END

ETC0162C TUNER UNIT PARTS LIST (For EC Only)

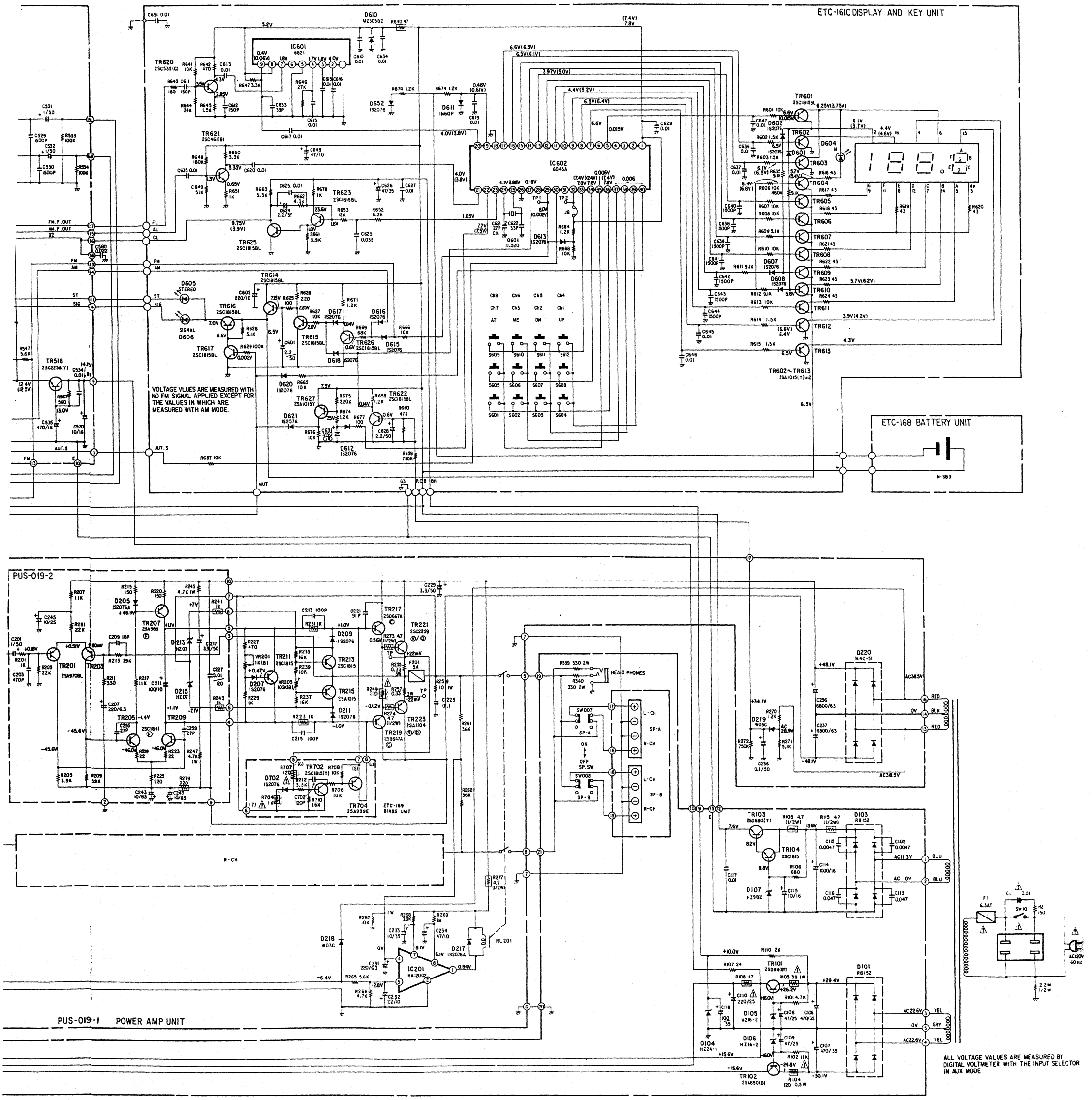
All parts except not listed are same as ETC0162

Ref. No.	Part No.	Part Name & Descriptions
	ADD PARTS	
R599	2412080001	330ohm ±5% 1/4W CARBON FILM
C514	2531024003	0.01μF +80,−20% 50V CERAMIC
C552	2533605006	120pF ±5% 50V CERAMIC
C553	2544002009	47μF 6.3V ELECTROLYTIC
C573	2533601000	8pF ±0.5pF 50V CERAMIC
	DELETE PARTS	
R575	2412104000	3.3 kohm ±5% 1/4W CARBON FILM
R597	2412114003	8.2 kohm ±5% 1/4W CARBON FILM
C544	2531024003	0.01μF +80,−20% 50V CERAMIC
C545	2533623004	68pF ±5% 50V CERAMIC
	CHANGE PARTS	
	EP-5667H3	TERMINAL USED 19

WIRING DIAGRAM (For EC only)

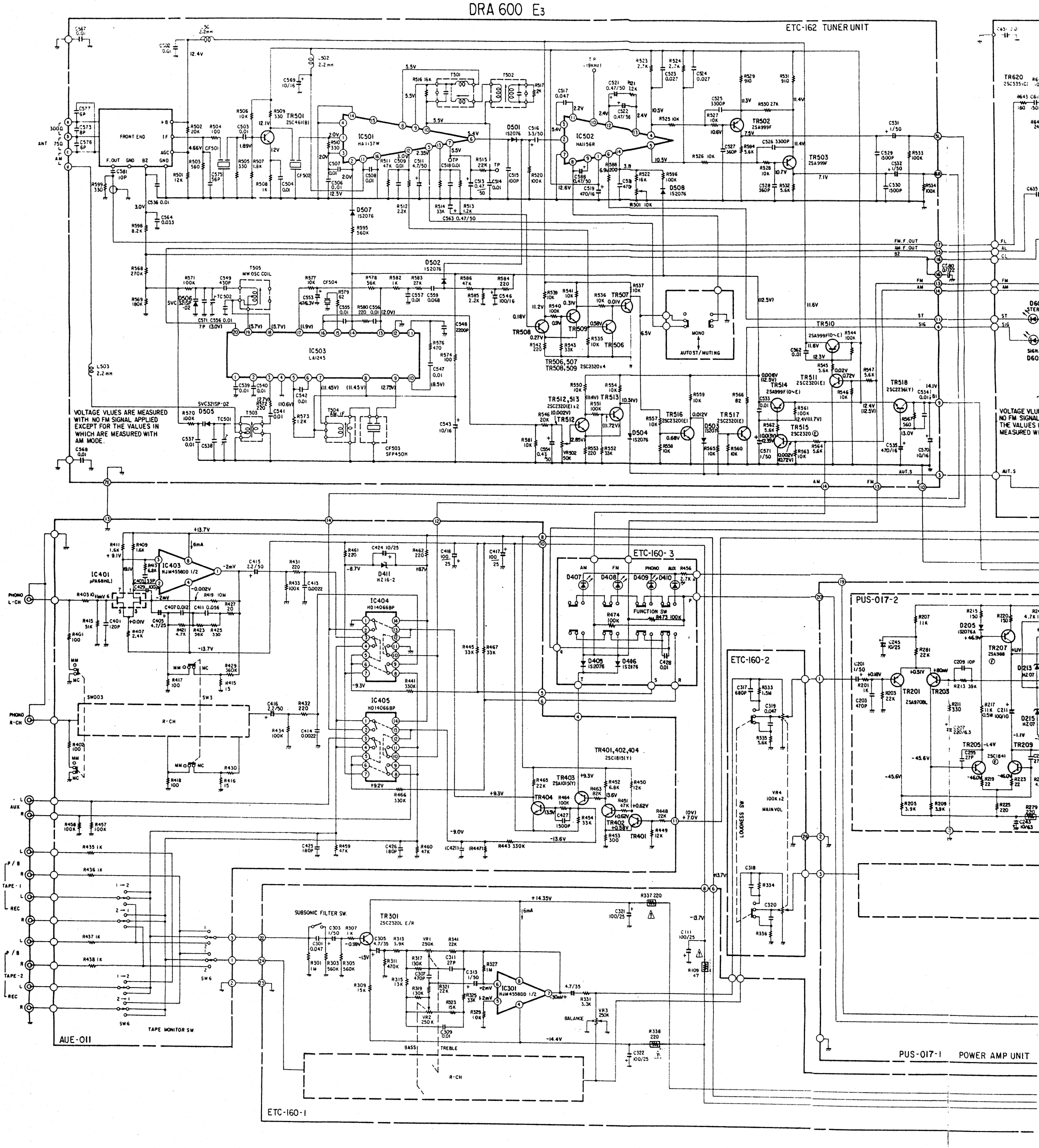


⚠ ▩ Means important safety item, which must be replaced, when necessary, by a part specified or meeting the specification by the manufacturer.



NOTES:
ALL RESISTANCE VALUES IN OHM, K = 1,000 OHM, M = 1,000,000 OHM.
ALL CAPACITANCE VALUES IN MICROFARAD, P = MICRO-MICRO FARAD.
EVERY VOLTAGES AND CURRENTS IS MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

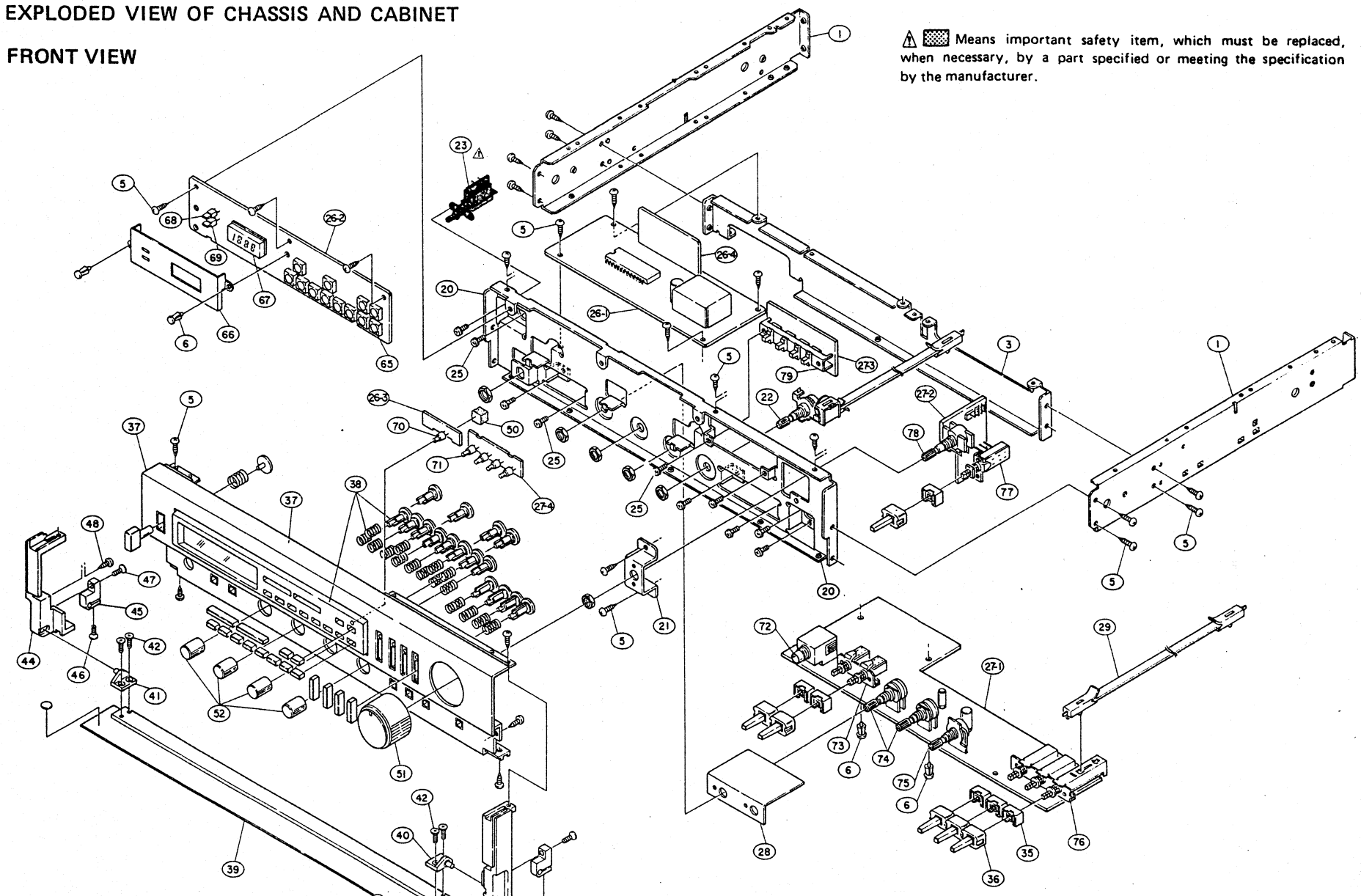
WIRING DIAGRAM (For E3)



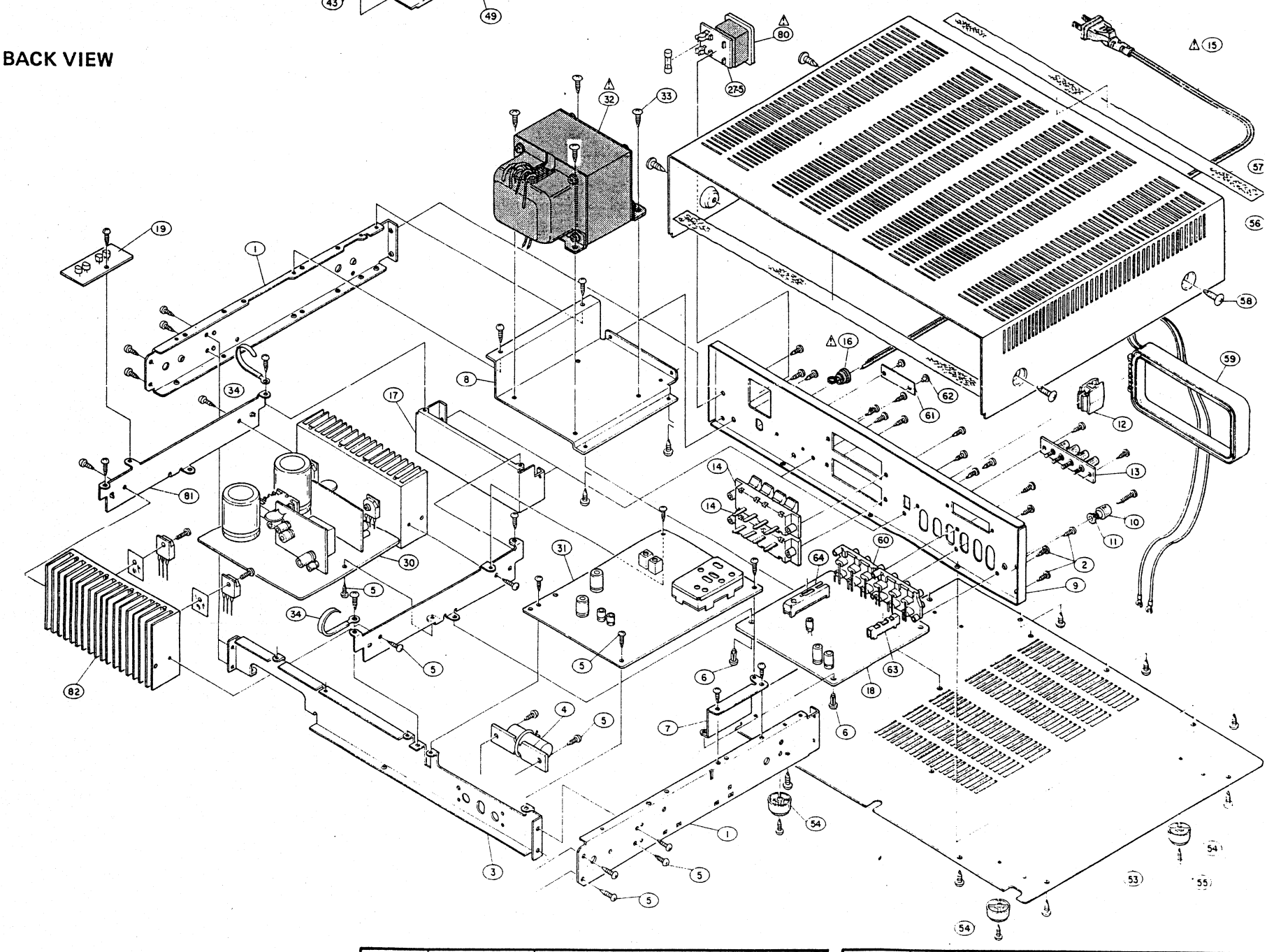
EXPLODED VIEW OF CHASSIS AND CABINET

FRONT VIEW

⚠ ▩ Means important safety item, which must be replaced, when necessary, by a part specified or meeting the specification by the manufacturer.



BACK VIEW



Ref. No.	Part No.	Part Name & Descriptions
	PACKING & ACCESSORIES	
a	5130364006	CAUTION SHEET
b	5020496000	DOOR PAD
c	5040052013	CABINET COVER

Ref. No.	Part No.	Part Name & Descriptions
d	5030213202	CUSHION
e	5010702005	CARTON CASE
f	5050061007	ENVELOPE
g	5110815106	INST. MANUAL
h	3950005107	FM ANT. ASS'Y

EXPLODED VIEW OF PARTS LIST

Note:
1. See addendum list below for the parts with asterisk(*) on the Ref. No. and the other parts not included in this lot.
2. *Mark is not included EXPLODED VIEW.
3. This list is prepared based on E3.

Ref. No.	Part No.	Part Name & Descriptions
1	4110216706	SIDE CHASSIS
2	4770064107	FIXING SCREW
3	4110260105	CHASSIS FRAME
4	ETC0168	BATTERY UNIT
5	4730354019	TAPPING SCREW (2) 3x8
6	4770096007	PUSH RIVET
7	4120765001	FIX. BRACKET (A)
8	4120767504	TRANS BRACKET
*9	1050344003	BACK PANEL
10	2050071016	TERMINAL ASS'Y
11	4770018001	WASHER (P-87)
12	1460262005	ANTENNA HOLDER
13	2050050008	4P TERMINAL
14	2050129007	4P PUSH TERMINAL
△*15	2062019008	AC CORD
△*16	MD-3802	BUSHING
17	4120766000	FIX. BRACKET (B)
18	AUE0011	EQ. & CONTROL UNIT
19	ETC0169	BIAS UNIT
20	4120258201	FRONT CHASSIS
21	4120763003	VOLUME BRACKET
22	2120177002	ROTARY REMOTE
△*23	2124154021	POWER SW
△*24	2610035007	CR BLOCK
25	4700009006	PAN SCREW WITH S. WASHER 3x6
*26	ETC0161	DISPLAY & KEY UNIT
*27	ETC0160	CONTROL UNIT
28	4140223002	SHIELD PLATE
29	4350052005	FLEXIBLE SLIDER
*30	PUS0017	POWER AMP & SUP. UNIT
*31	ETC0162	TUNER UNIT
△*32	2335259003	POWER TRANS
33	4734454038	TAPPING SCREW 4x8 BLACK
34	EP-4772	CORD HOLDER
35	1140056007	FLEXIBLE RING
36	1130225000	PUSH KNOB (C)
37	1440727000	FRONT PANEL ASS'Y
38	1460333303	CONTROL PANEL ASS'Y
39	1440719002	DOOR
40	4010057227	SHAFT (R)
41	4712302047	FLAT HEAD SCREW 3x5
42	4010058129	SHAFT (L)
43	1220039012	SPACER
44	1460305108	SIDE PANEL (L)
45	4010088102	HINGE
46	4712305015	FLAT HEAD SCREW 3x10
47	4732306010	FLAT HEAD TAPPING SCREW (1) 3x12
48	4730304014	TAPPING SCREW (1) 3x8
49	1460306107	SIDE PANEL (R)
50	1290002066	SOFT TAPE
51	1120312101	KNOB (A)
52	1120313003	KNOB (B)
53	1050345206	BOTTOM COVER
54	1048001002	FOOT
55	SC-0627-1	FIX. SCREW
56	1020107005	TOP COVER
57	1220064003	SPACER
58	4734801005	TAPPING SCREW TRUSS 4x8
59	2311060009	LOOP ANTENNA
60	2040079002	6P CONNECTOR BASE (AUE0011)
61	5130398140	SERIAL NO. PLATE
62	4770126016	RIVET
63	2124255001	PUSH SWITCH (REMOTE) (AUE0011)
64	2124254002	SLIDE SWITCH (REMOTE) (AUE0011)
65	2124253003	PUSH SWITCH (EVQ PXR) (ETC0161)
66	1440726008	MASK (ETC0161)
67	3939102005	SL-2436-01 (ETC0161)
68	3939092005	LED (RED) (ETC0161)
69	3939093004	LED (GREEN) (ETC0161)
70	3939032007	TLR206 (RED) (ETC0161)
71	3939040002	TLG206 (GREEN) (ETC0160)
72	2048047007	HEAD PHONE JACK (ETC0160)
73	2124257009	2P PUSH SWITCH (ETC0160)
74	2110265005	VARIABLE RESISTOR 250 KOHM FOR TONE (ETC0160)
75	2110198004	VARIABLE RESISTOR 250 KOHM FOR BALANCE (ETC0160)
76	2124256000	3P PUSH SWITCH (ETC0160)
77	2124168004	1P PUSH SWITCH (ETC0160)
78	2110251006	VARIABLE RESISTOR 100 KOHM FOR MAIN (ETC0160)
79	2124287008	4P PUSH SWITCH (ETC0160)
△*80	2033912008	2P AC OUTLET (ETC0160)
81	4120764002	RADIATOR BRACKET (PUS0017)
82	4170129008	RADIATOR (PUS0017)
83	4120876000	P.C.B SUPPORT (R)
84	4120877009	P.C.B SUPPORT (L)
85	4751106071	WASHER
△*86	2061023082	FUSE 6.3A UL
87	4610121016	CUSHION
88	4410320004	FIX. PLATE
89	WA-0107H4	WASHER
*90	4450033005	WIRE CLAMP BAND USED 10
91	1120358107	KNOB (C)
92	1040034006	STOPPER

NIPPON COLUMBIA CO., LTD.
No. 14-14, 4-CHOME AKASAKA,
MINATO-KU, TOKYO 107 JAPAN
TEL: 03-584-8111
TLX: JAPANOLA J22591
CABLE: NIPPONCOLUMBIA TOKYO

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ADDENDAM LIST

Ref. No.	Part Name	Part No.			
		EC for Canada			
9	Back Panel	1050383006			
△15	AC Cord	2062019008			
△16	Bashing	MD-3802			
△23	Push Switch	2124154034			
△24	Capacitor	2568019007 (Metalized)			
26	Display & Key Unit	ETC0161C			
27	Control Unit	ETC0171			
30	Power Amp & Sup. Unit	PUS0019			
31	Tuner Unit	ETC0162C			
△32	Power Trans	2335269006			
18	EQ. & Control Unit	AUE0011B			
100	Resistor 2.2 Megaohm	2420073000			
101	3 Tlug	2050003107			
102	Resistor 150ohm	2412072006			